A Business Model Innovation Framework for Capturing White Space Opportunities

Wouter J. Kühn

Thesis presented in fulfilment of the requirements for the degree of

Master of Engineering (Engineering Management)

in the Faculty of Engineering at Stellenbosch University

Supervisor: Dr. L Louw

March 2018

Declaration

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Date: 23 November 2017

“Some men see things as they are and say, *why?*

I dream of things that never were, and say, *why not?*”

George Bernard Shaw
(1856 – 1950)

Abstract

Business models and business model innovation (BMI) have been receiving increasing attention in recent years, from both academics and practitioners. BMI is crucial for any business to stay competitively relevant. Yet, few businesses understand its dynamics. Different perspectives still exist around what constitutes a business model, as well as what BMI is and how it should be executed. Similarly, white space opportunities are often avoided due to a lack of understanding and reliable capturing processes. A concrete understanding of present capabilities, along with methodological tactics to assess the requirements of a business model from new opportunities, result in the tough job of mapping a white space sensibly and making it practicably manageable. White space opportunities, defined as *the range of potential activities not defined or addressed by the company's current business model, that is, the opportunities outside its core and beyond its adjacencies that require a different business model to exploit*, can bring about excellent transformational growth within an organisation and reveal new revenue streams. Thus, it should be viewed as an opportunity which should be pursued, rather than be an unfamiliar opportunity that is often avoided.

A comprehensive literature review was conducted focusing on business model structures, BMI processes and frameworks, as well as white space opportunities. Related fields of study were also explored: innovation and innovation management, strategy, opportunity identification and opportunity analysis. A gap in the existing body of knowledge on BMI frameworks was identified as current BMI frameworks namely: (a) do not sufficiently address the concept of white space opportunities, (b) lack design guidelines supporting its execution on lower component levels, (c) incorporate limited decision-making structures, and (d) often have a lack of tools in context of where it is required or useful.

The main objective of this study was therefore to develop a well-structured and comprehensive white space BMI framework. This framework contains suitable processes, tools and design guidelines, all of which support companies through the decision-making process in identifying white space opportunities and developing an innovative business model.

The study used the literature analysis as well Delphi approach (involving various industry and academies experts), to identify and validate suitable design guidelines for the BMI process. The inputs from the literature analysis and experts were combined to develop a comprehensive framework, which can reliably guide managers through the BMI process of identifying a white space opportunity and then developing an innovative business model for that opportunity. The application of the entire framework is specifically aimed at larger, settled businesses - where a structured approach is more important. The framework was successfully validated through a survey involving various industry and academic experts. Positive feedback was received regarding the genericity, usefulness, practicality and comprehensiveness of the framework. Valuable inputs were also obtained and incorporated, to improve the logic, flexibility and quality of the developed framework.

This framework makes a significant contribution towards the current body of knowledge about BMI for white space opportunities, by providing a better understanding of how white space opportunities can be systematically identified, as well as clarifying the process required to develop innovative business models for such opportunities. The identification of key design guidelines for the design process is also a useful contribution.

Future research can focus on validating the framework further by testing and evaluating it using a case study.

Opsomming

Besigheidsmodelle en besigheidsmodel innovasie (BMI) het die afgelope paar jare toenemend aandag gekry, van beide akademici en praktisyns. BMI is noodsaaklik vir enige besigheid om mededingend relevant te bly. Tog verstaan min besighede sy dinamika. Terwyl besigheidsmodelle en BMI meer aandag geniet, bestaan daar steeds verskillende perspektiewe oor wat 'n besigheidsmodel en BMI is en hoe dit uitgevoer moet word. Net so word wit spasie geleenthede dikwels vermy weens 'n gebrek aan begrip en betroubare vasleggings prosesse. 'n Konkrete begrip van huidige vermoëns, tesame met metodologiese taktiek om die vereistes van 'n besigheidsmodel te evalueer vir nuwe geleenthede, lei tot die moeilike taak om 'n wit spasie sinvol te karteer en dit prakties hanteerbaar te maak. Wit spasie geleenthede, *gedefinieer as die omvang van potensiële aktiwiteite wat nie deur die maatskappy se huidige besigheidsmodel gedefinieer of aangespreek word nie, dus die geleenthede wat buite sy kern en aangrensende geleenthede lê wat 'n ander besigheidsmodel vereis om te ontgin*, kan uitstekende transformerende groei binne 'n organisasie veroorsaak en nuwe inkomstebronne openbaar stel. Dit moet dus beskou word as 'n geleentheid wat nagestreef moet word, eerder as om 'n onbekende geleentheid te wees wat dikwels vermy word.

'n Omvattende literatuuroorsig was uitgevoer met die fokus op besigheidsmodel strukture, BMI prosesse en raamwerke, asook wit spasie geleenthede. Verwante studierigtings is ook ondersoek: innovasie en innovasiebestuur, strategie, geleentheidsidentifikasie en geleentheidsanalise. 'n Gaping in die bestaande kennisraamwerk oor BMI raamwerke is in die huidige BMI raamwerke geïdentifiseer naamlik: (a) die konsep van wit spasie geleenthede is nie voldoende aangespreek nie, (b) gebrek van ontwerpriglyne wat die uitvoering daarvan op laer komponentvlakke ondersteun, (c) beperkte inkorporasie van besluitnemingstrukture, en (d) dikwels ‘n gebrek aan gereedskap in konteks van waar dit nodig of nuttig is.

Die hoofdoel van hierdie studie was dus om 'n goeie gestruktureerde en omvattende wit spasie BMI raamwerk te ontwikkel met geskikte prosesse, gereedskap en ontwerpriglyne wat maatskappye ondersteun met die besluitnemingsproses om wit spasie geleenthede te identifiseer en 'n innoverende besigheidsmodel te ontwikkel.

Die studie het die literatuuranalise asook ‘n Delphi-benadering (waarby verskeie bedryf en akademiese kundiges betrokke was) gebruik om toepaslike ontwerpriglyne vir die BMI proses te identifiseer en te valideer. Die insette van die literatuuranalise en kundiges was gekombineer om 'n omvattende raamwerk te ontwikkel wat bestuurders betroubaar kan lei deur die BMI proses om 'n wit spasie geleentheid te identifiseer en dan 'n innoverende besigheidsmodel te ontwerp vir daardie geleentheid. Die toepassing van die hele raamwerk is spesifiek gemik op groter gevestigde besighede waar 'n gestruktureerde benadering belangriker is. Die raamwerk is suksesvol gevalideer deur middel van 'n opname wat verskeie industriële en akademiese kundiges ingesluit het. Positiewe terugvoer is ontvang ten opsigte van die generiese, bruikbaarheid, praktiese en volledigheid van die raamwerk. Waardevolle insette was verkry en opgeneem om die logika, buigsaamheid en kwaliteit van die ontwikkelde raamwerk te verbeter.

Hierdie raamwerk lewer 'n beduidende bydrae tot die huidige kennis van BMI vir wit spasie geleenthede deur beter begrip te verskaf van hoe wit spasie geleenthede stelselmatig geïdentifiseer kan word, asook om die proses te verduidelik wat nodig is om innoverende sakemodelle vir sulke geleenthede te ontwikkel. Die identifisering van sleutelontwerpriglyne vir die ontwerpproses is ook 'n nuttige bydrae.

Toekomstige navorsing kan verder fokus op die validering van die raamwerk deur dit te toets en te evalueer deur middel van 'n gevallestudie.

Acknowledgements

I would like to express my sincere gratitude to the following people:

- Dr. Louis Louw, my study leader, for his overall guidance and supervision of this project.
- My father, Theuns Kühn, for giving me the opportunity to study and for always being an excellent role model in all aspects of life.
- The rest of my family and friends for their support.

The Author, March, 2018.

Table of Contents

List of Figures

List of Tables

List of Acronyms and Abbreviations

A&S	Approach and Steps
BMI	Business Model Innovation
CR	Customer Relationships
CS	Cost Structure
CuSe	Customer Segments
CV	Coefficient of Variation
CVP	Customer Value Proposition
DC	Distribution Channels
DNA	Did Not Answer
FESC	Faculty Ethics Screening Committee
HL	High-Level
HLP	High-Level Phase
IBM	International Business Machines
IQR	Interquartile Range
IRR	Internal Rate of Return
JTBD	Jobs To Be Done
KA	Key Activities
KP	Key Partners
KR	Key Resources
LL	Lower Limit
LS	Logical Sequence
NPV	Net Present Value
Q1	First Quartile
Q3	Third Quartile
QFD	Quality Function Deployment
REC	Research Ethics Committee
ROI	Return On Investment
RS	Revenue Streams
SAIIE	South African Institute of Industrial Engineering
SWOT	Strengths, Weaknesses, Opportunities and Threats
UL	Upper Limit
USB	University of Stellenbosch Business School
VP	Value Proposition

Nomenclature

n	Number of Values
s	Sample Standard Deviation
x	Data Value
$\bar{x}$	Mean

CHAPTER 1

INTRODUCTION

This study proposes a framework to assist companies to innovate and generate new business models to capture white space opportunities. Chapter 1 intends to present the research project by giving sufficient background on the thesis topic, describing the research problem and listing the research questions. The research objectives are then generated, followed by the research project's contribution, design, methodology, delineations and ethical implications. Finally, Chapter 1 concludes with the thesis outline. Figure 1.1 below presents an overview of the structure of the document and acts as a roadmap during this study.

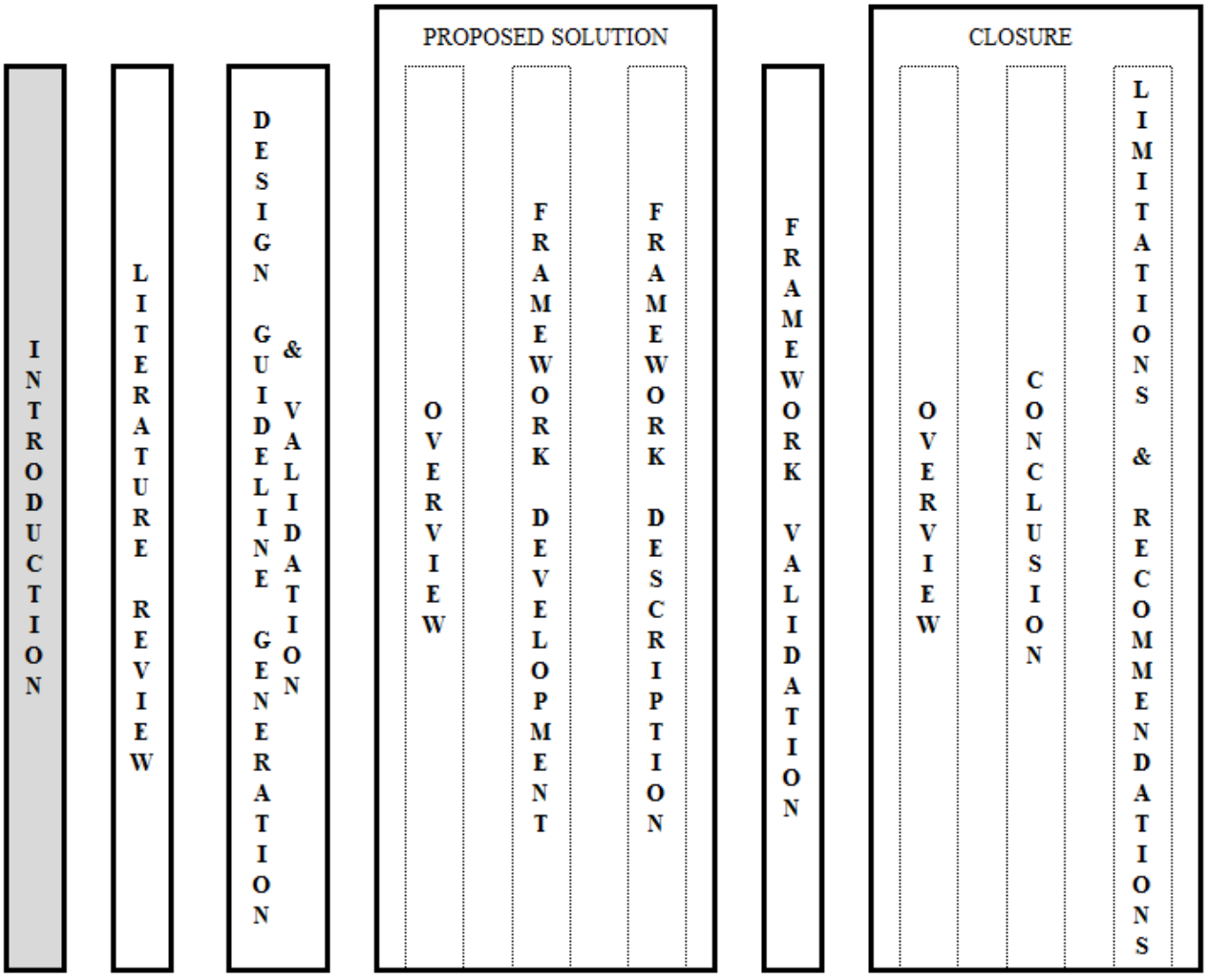


Figure 1.1: The position of Chapter 1 relative to the research study

1.1 Background

Xerox invented the computer mouse, the laser printer as well as the graphical user interface, yet Xerox failed to effectively commercialise any of the products (Chesbrough & Rosenbloom, 2002). A business opportunity like this is complex to grasp due to the fact that the opportunity requires firms to transfer out of their safe centric area and into unfamiliar terrains – into their white space (Johnson, 2010a). This unacquainted zone can be a daunting and frightening area. Even though the peril is evident, its reasons are not. A white space is tricky to pilot, not due to its unfamiliar nature, but due to most firms using the incorrect business model (Kagermann *et al*., 2008).

According to Kagermann *et al.* (2008), each company that is providing a real customer job successfully within an industry, is already operating with a successful business model. Furthermore, Johnson (2010a) states, due to the lack of clear knowledge of their own business model – the roots of its development, how each part works with another, the advantages and disadvantages chasing after new growth – these companies do not know whether they can use their current business model to capture a new market opportunity or whether the opportunity is a white space. To capture these white spaces, a new business model must be generated and therefore firms require a defined business model process that assists managers to understand the difficulty of moving away from their business core (Johnson, 2010a).

Business scholars have studied a lot of successful firms and recorded all the vital lessons learnt - on such a broad scale that some of the lessons conflict with one another. There is solid academic research that reveals that companies that kept within the safe boundaries of their core, achieved the utmost success (Prahalad & Hamel, 2006; Foss, 1997). Yet, other research reveals that the best opportunities to grow entail an entirely new set of goods and services that generate new markets (Eckhardt & Shane, 2003). According to Johnson (2010a), the requirement is to move away from the various contradicting things that many companies do, and rather move towards a type of framework which managers can confidently go through and assist them in their decision-making process.

The innovation of business models is imperative (Mitchell & Coles, 2003). Johnson (2010b) states that more than 50% of the 26 enterprises established since 1984 that passed into the Fortune 500 between 1997 and 2007, achieved this by executing business model innovation (BMI). A study done by International Business Machines (IBM) in 2008 found that most of the assessed CEOs stated that their current business model required alterations (Amit & Zott, 2012). However, less than 10% of the innovation funds of these companies were directed into generating new business models (Johnson, 2010b).

The organisations that try to execute the BMI process often fail, even if they possessed all the necessary abilities and resources (Kaplan, 2011). The core reason for this undoing is the fact that the companies and their managers do not understand what a business model is, let alone what business model they are currently operating (Kagermann, *et al.*, 2008). It cannot be expected from these companies then to understand how, when and why to generate a new business model.

There are far more opportunities in the market environment than what most managers realise. Christensen & Raynor (2013) believe that it is necessary for firms to identify new value propositions that satisfy new jobs that customers require to be executed within the economy. Johnson (2010a) states the key is for companies to put in the same amount of effort to obtain new revenue streams, as they do to innovate their products and technologies.

The phrase *BMI* has become very popular within the academic business literature world (Markides, 2013; Geterud & Tegern, 2012; Bucherer, 2011). Nonetheless, it is a topic that many businesses and top executives do not understand and fully comprehend, resulting in a lack and deficiency of importance accorded to this topic within the corporate world (Kagermann *et al.*, 2008; Bucherer, 2011).

Numerous BMI models or frameworks have been designed and developed. Most of these however, are on a very broad and general level, only illustrating the model and giving brief generic descriptions of the different model phases, as can be seen by prominent BMI frameworks designed by Osterwalder & Pigneur (2010), Geissdoerfer *et al.* (2017), Johnson (2010b) and Lingardt & Reeves (2011). The storage of these models within the theoretical realm makes it difficult to apply these models within the physical business world. Frankenberger *et al.* (2013) state that the BMI research field lacks a comprehensive framework that can support executives in terms of innovating their business models. From literature this is true for arguably one of the more important phases within a BMI or design framework – the design phase.

Most frameworks only discuss on a general level what should be looked at, what should be avoided and how a business model works. However, they fail to get to the critical point of what should be done and considered on a detailed level, in terms of the method involved in designing the actual business model. Therefore, business model design literature requires distinct generic design guidelines, which will assist the user in a practical manner as to what should be done and considered to design a successful business model at a component or building block level. Bucherer (2011) supports this concept by stating that "missing theory and guidelines hinder business model innovation in practice and its scientific evaluation alike."

Frankenberger *et al.* (2013) state that literature has not converged to a common agreement about which components makeup a business model itself. Richardson (2008) reinforces this idea by stating that, although various common business model themes exist in terms of their components, a great deal of variation still exists. This is supported by the amount of differing business model designs and components in literature, such as Osterwalder & Pigneur's (2010) Business Model Canvas, Johnson's (2010b) Four-Box Business Model, the Triangular Business Model by Frankenberger *et al.* (2013) and Richardson's (2008) Value Business Model.

According to Gaglio & Katz (2001), additional difficulty is added to the BMI process when the process and dynamics of opportunity identification remains mysterious. A vast number of the BMI frameworks focus on generating new business models by innovating their *current* business model. Therefore, the systematic process of identifying new market opportunities is often neglected and the focus is rather on understanding and innovating the current environment of the business.

The BMI models that focus on designing completely new business models for new market opportunities, such as Johnson's (2010b) Repeatable BMI Process, only mention that opportunities or customer jobs should be discovered within the first stage. Yet, little to no systematic structure is given to aid in truly recognising, assessing and understanding an occurring market opportunity, let alone how to know whether the opportunity and industry itself should be pursued from a profitable business point of view. Bonney Jr (2008) supports this concept by stating the ability to identify market opportunities has not been sufficiently explored in marketing literature.

Storbaka (2010) stresses the use of concrete practical tools for the generation of BMI. The prominent BMI frameworks as designed by Frankenberger *et al.* (2013), Geissdoerfer *et al.* (2017), Johnson (2010b) and Lingardt & Reeves (2011) lack concrete, practical and applicable tools to assist in executing their required stages. There are certain business model understanding and assessment tools

present in the Five-Stage BMI Process designed by Osterwalder & Pigneur (2010), as well as Geterud & Tegern's (2012) BMI Tool Framework. However, these two frameworks do not include any market opportunity identification, assessment or classification tools. Gassman *et al.* (2014) support this concept by stating that one of the biggest issues surrounding BMI today is the lack of systematic tools.

Frankenberger *et al.* (2013) state that the BMI field lacks comprehensive frameworks to support managers. From literature it was observed that very few BMI and design frameworks have been designed in the form of a detailed process flow framework, which contains suitable tools that assist and guide the user step-by-step in order to determine which decisions and assessments should be made from the beginning to the end.

Bucherer (2011) states that, "process models depicting the process steps and providing practical guidance, as they can be found in related research fields do not yet exist." Additionally it was found that no framework exists that simultaneously takes into consideration other important factors and fields of study such as BMI enablers, BMI barriers, strategy, innovation management and change management - let alone a framework capable of guiding managerial decisions which specialises in capturing white space opportunities which incorporates these elements.

Decision-making is crucial to all kinds of management activities and therefore it is also vital to BMI. The key managerial role is to be able to make effective decisions as stated by Al-Tarawneh (2012). This leads to managers spending considerable quantities of time, as well as energy, to make the correct decisions. Kocher & Sutter (2006) state that in the world of economics and finance, payoffs often depend on the speed at which decisions can be made. Equally, the decisions that are involved to innovate or generate a new business model is a tricky and time-consuming procedure. Generating a new business model involves numerous dimensions, considerations and elements. A framework that simplifies a complex process and which could be reliably followed in terms of which decisions to make, could mean the difference between success and failure.

Therefore, it can be seen how different components of various BMI frameworks can be used in conjunction with related fields of study, to generate the first comprehensive white space business model design framework which covers the previously mentioned gaps that other individual current models and frameworks neglect to confront.

Additionally, such a framework will result in a significant advancement of current white space business model design frameworks as described in the literature. Furthermore, this research project takes it a step further by suggesting an additional novel framework that results in the growth and expansion of an enterprise, through the generation of subsidiary companies, by exploiting white space opportunities. The following section discusses the research study's problem statement and questions.

1.2 Research problem statement and questions

Section 1.1 covered a broad spectrum of academic material regarding the author's topic. It will be seen within the literature review that various amounts of research have been done on business model design processes and the related innovation aspects.

Although a white space BMI process already exists, this process was designed and described on a very high and general level containing few detailed tools. Similarly, other BMI frameworks are of a very basic structure and therefore do not contain an all-encompassing detailed, practical and in-depth decision-making structure that aids the user in a realistic manner from beginning to end. Even though

some BMI frameworks mention the concept of opportunities and tools, current frameworks do not include these two topics in a comprehensive systematic decision-making manner – less so into a white space BMI framework. Additionally, although most BMI frameworks contain a descriptive design phase as to what to consider on an overall and high-level, a set of generic design guideline statements do not exist for each component or building block of a business model. This follows the pursuit of a generic innovative business model since Bacchetti and Saccani (2012) state that concrete guidelines are necessary to support and increase the probability for theoretical models to be adopted in practice.

In other words, even though literature exists on how to develop and innovate a business model on a generic high-level, great potential exists to tie together various BMI frameworks, tools and other related fields of study in order to significantly advance current frameworks to generate the first concrete, comprehensive, well-structured and realistically practicable white space BMI framework which contains numerous sets of business model building block design guidelines.

In summary, current white space BMI frameworks lag behind current BMI literature in various aspects. Due to the uncertainty and risk linked to pursuing a white space opportunity, coupled with the need of a structured process in an ever-changing and high pace business environment, businesses require a framework to assist them in making decisions on how to identify a white space opportunity and generate a suitable innovative business model.

The problems surround the research study are translated into the following core problem statement:

A gap in literature exists in that no illustrative, comprehensive and detailed BMI framework - which contains appropriate processes, tools and building-block design guidelines - exists on how to systematically identify a white space opportunity and develop an innovative business model.

This leads to the main research question which is:

How would an illustrative, comprehensive and detailed BMI framework - which contains appropriate processes, tools and building-block design guidelines – capable of systematically identifying a white space opportunity and developing an innovative business model be developed?

The associated sub-research questions are listed below:

1. What are the current business model definitions, frameworks and components?
2. What are the current BMI definitions, frameworks, stages and activities?
3. What are the limitations of current of BMI frameworks?
4. What does the transformation process entail to change from a current business model to a new innovative business model, and does it differ when pursuing a white space opportunity?
5. What is a white space opportunity?
6. What are the key design guidelines to be considered when developing the various building blocks of a business model?
7. Which relevant methods and tools are available to support the business model development process?

8. How would a framework capable of systematically identifying a white space opportunity and developing an innovative business model be developed?
9. How can it be assured that the designed white space BMI framework is valid?

The sub-research questions will be addressed to better comprehend and answer the main research question itself. Section 1.3 discusses the study's research objectives.

1.3 Research objectives

Section 1.1 and 1.2 sets up the research objectives in this section to direct the implementation of the dissertation. This project intends to confront the discussed problems mentioned in Section 1.2 with the creation of a framework to identify white space opportunities and develop an appropriate innovative business model for that chosen white space opportunity. This framework must aim to act as a decision piloting mechanism and guideline to support companies in their decision-making process regarding white space opportunities and the development of a suitable innovative business model. Additionally, it must present executives and managers with an organised, honest and realistic approach to execute educated decisions while providing an inclusive approach to the problem.

To address the core research question, the main research objective is presented below:

Develop an illustrative, comprehensive and detailed BMI framework - which contains appropriate processes, tools and building-block design guidelines – capable of systematically identifying a white space opportunity and developing an innovative business model.

The associated and relevant sub-objectives, which is split from the main research objective, are listed below to address the sub-research questions:

1. Identify current business model definitions, frameworks and components.
2. Identify current BMI definitions, frameworks, stages and activities.
3. Identify the limitations of current BMI frameworks.
4. Identify the transformation process of how to change from a current business model to a new innovative business model, and how it differs when pursuing a white space opportunity.
5. Define a white space opportunity.
6. Identify key design guidelines to be considered when developing the various building blocks of a business model.
7. Identify the relevant methods and tools necessary to assist the business model development process.
8. Develop a framework capable of systematically identifying a white space opportunity and developing an innovative business model.
9. Validate the white space BMI framework.

Within the research Du Toit (2014) executed, she explored the term framework and its various definitions. The Cambridge dictionary defines a framework as "a system of rules, ideas or beliefs that is used to plan or decide something" (Cambridge, 2017). The Business dictionary however defines a framework as a "broad overview, outline or skeleton of interlinked items which supports a particular approach to a specific objective, and serves as a guide that can be modified as required by adding or deleting items" (Framework, 2017). This study will develop a framework within the context of this definition. The framework will serve as an outline for the decision-making process. It presents a piloting mechanism through which decisions can be made by serving as an organised assembly of academic research and by anchoring the relationships between connected concepts. Following on from Section 1.1 and Section 1.2, the recommended framework aims to contain the following key features:

1. The framework should be *generic* enough to be used within different industries and not be limited to a specific application.
2. The process of moving through the framework should be rational and pilot a *structured* and organised decision-making process.
3. The framework should be able to be effectively *practicable* within industries and not be limited to a specific application.
4. The framework should contain a substantiated, inclusive and *comprehensive* approach to the problem by integrating various fields of discipline.
5. The framework should be *flexible* and *adjustable* enough to be used within specific situations.

The core and sub research questions, objectives and their solutions are summarised within Table A1 in Appendix A. The research questions, research objectives and research methodology in Table A1 address the why, what and how aspects of the thesis respectively.

The presented project intends to accomplish the stated objectives. The study is directed by the research objectives and the white space BMI framework is created in line with the stated key features. To address the objectives an extensive literature review will be done in the fields of business models, BMI, white spaces as well as linking these fields to parallel fields of study such as innovation and innovation management, strategy, opportunity identification and opportunity analysis. Design guidelines will be generated from the literature review and will then be validated using a Delphi approach. Finally, the white space BMI framework will be generated, validated and adjusted accordingly. The next section discusses the contribution this research study aims to make to research.

1.4 Research contribution

As was discussed in Section 1.2, there has not yet surfaced an in-depth white space BMI framework. This framework should contain suitable processes, business model design guidelines and step-by-step tools through which a company can confidently move through, to identify a white space market opportunity and develop an innovative business model.

This research makes the following contributions towards the body of knowledge on BMI and design:

- Clarifies which components makeup a business model.
- The generation of design guidelines for each business model component.
- Clarifies the concept of BMI and white space opportunities.

- Advances Johnson's current white space BMI framework significantly.
- Advances knowledge on the dynamics of BMI frameworks.
- The design of a market opportunity identification, assessment and classification process using existing literature.
- The generation of concept and tool templates which can be physically used.
- Linking related fields of study to the actual framework in a practical manner.
- The generation of white space BMI framework in the form of an in-depth and detailed decision-making process.
- The design of an additional novel framework that results in the growth and expansion of a parent company through the generation of white space subsidiary companies.

Due to the ever-developing technological innovations and growing scientific research, there are always new ways to generate new revenue streams. According to Johnson (2010a), a BMI process possesses the potential to increase the standard of living globally, through the introduction of products and services to customers that are not within the current global economy.

The framework developed in this research provides a comprehensive roadmap that will lead the reader through a good decision-making process. This is especially true since most business managers do not know or understand their own business models well enough, let alone being able to make good decisions to be able to design an innovative business model (Kagermann *et al.*, 2008). Additionally, the framework will help overcome the hesitancy to pursue white space opportunities.

The research generated from this topic could be applied to almost any business. The final framework can be implemented whenever a company is confronted by possible opportunities that are not within the core structure of the company. The framework will guide the company as to what innovative business model to design, when entering the unchartered white space territory.

The framework represented in this research study will further advance the extraction of a white space from an unknown and apprehensive world. Moreover, the framework solidifies it within a strategic and executive leadership environment. The following section briefly outlines the research design.

1.5 Research design

The design for a research study is intended to act as a systematic plan for the project. The research design will be described in terms of the research onion, as described by Saunders *et al.* (2016). The research onion starts with an explanation of the research philosophy followed by defining the research approach, strategy, choices, time horizon and finally, the data collection techniques and procedures. The research onion can be seen at the top of the following page in Figure 1.2.

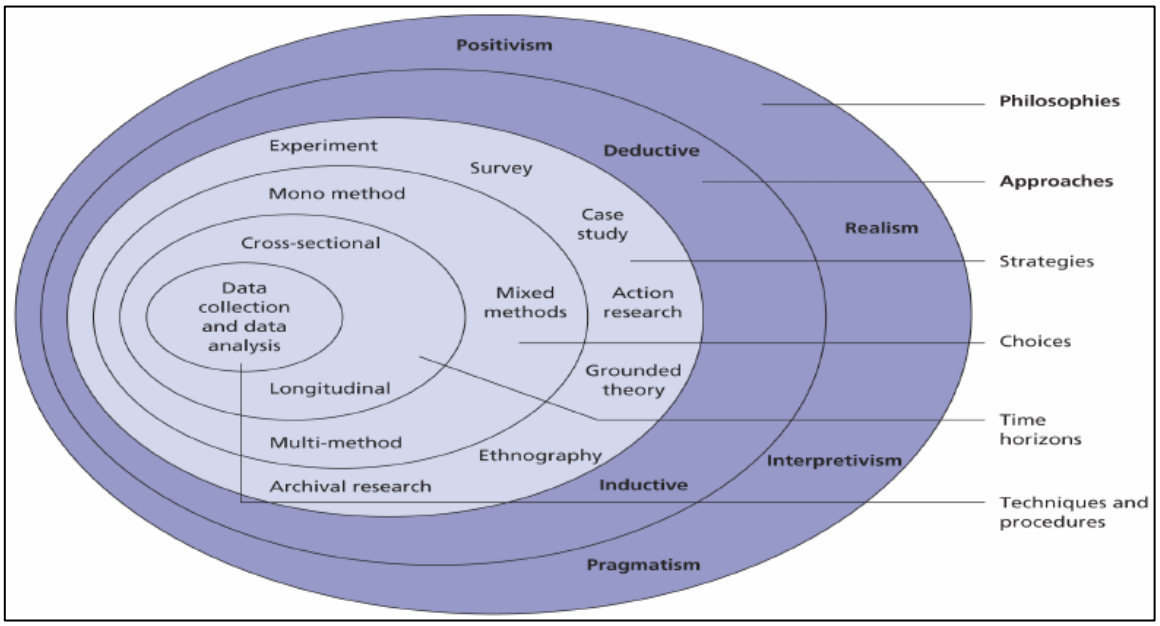


Figure 1.2: Research Onion
(Source: Saunders *et al.*, 2016)

Claims of knowledge that are made by the author are contained within the philosophical world view. A pragmatic perspective will be used as a worldview for this study. Activities, circumstances and penalties ascend from pragmatism. This type of worldview does not concentrate on methodologies, but it intends to comprehend the project problem and then identify appropriate workable solutions, using all likely methods (Rossman & Wilson, 1985).

This research study will adopt this concept by using a complete approach, thereby utilising various methods and perspectives to investigate the problem at hand. This project concentrates on finding a solution, specifically comprehensive white space BMI framework, and not utilising specific methods. Therefore, the study approach originates from a worldview of pragmatism.

This research study will take on an inductive approach, which according to Bryman & Bell (2011) is the transfer of the exact, to the generic. This approach starts off with the researcher making observations from which patterns are then identified in the data (Beiske, 2007). Therefore, the research focus is constructed after the collection of the data (Flick, 2011).

Saunders *et al.* (2016) state that the research strategy entails how the research project intends to be executed. In terms of the research onion, the research strategy will take the form of a survey. This was chosen due to the complexity of the validation process and the increased ease for the participants and author, in terms of time and money.

The pragmatic perspective forms the philosophical base for various and diverse use of methods, as stated by Creswell (2013). This project will utilise this concept using different methods. The research choice takes the form of a mixed method process, used to obtain a solution to the research problem. Qualitative methods are used in the form of a comprehensive literature review, while the validation process is in the form of a survey, which includes both qualitative and quantitative components.

According to Saunders *et al.* (2016) the time horizon serves as a structure of time in which the framework intends to be completed. This research project's time horizon will take the form of a cross-sectional time structure, which according to Flick (2011) is when data is collected at a specific point in time. This is the case with this research project, where the literature and validation processes pertaining to the research study were executed at a certain point in time.

The technique and procedure which will be used to collect the data will take the form of a survey questionnaire, using a Delphi approach and a one-round expert analysis to iterate and refine the design guidelines and framework respectively. The data collected and analysed from the surveys can be classified as primary data (Bryman, 2012). The following section describes the research project's methodology.

1.6 Research methodology

The research approach entailed an introduction and was followed by a comprehensive literature review, which served as the base of the project. The literature review was then summarised and synthesised after which component-specific business model design guidelines were then generated and validated by a Delphi approach. The literature review, containing the various BMI and innovation frameworks, was then used along with the final design guidelines to develop a proposed solution in the form of a comprehensive white space BMI framework. The framework was validated after which the research project was finally concluded within the closure. The project plan can be seen below in Figure 1.3.

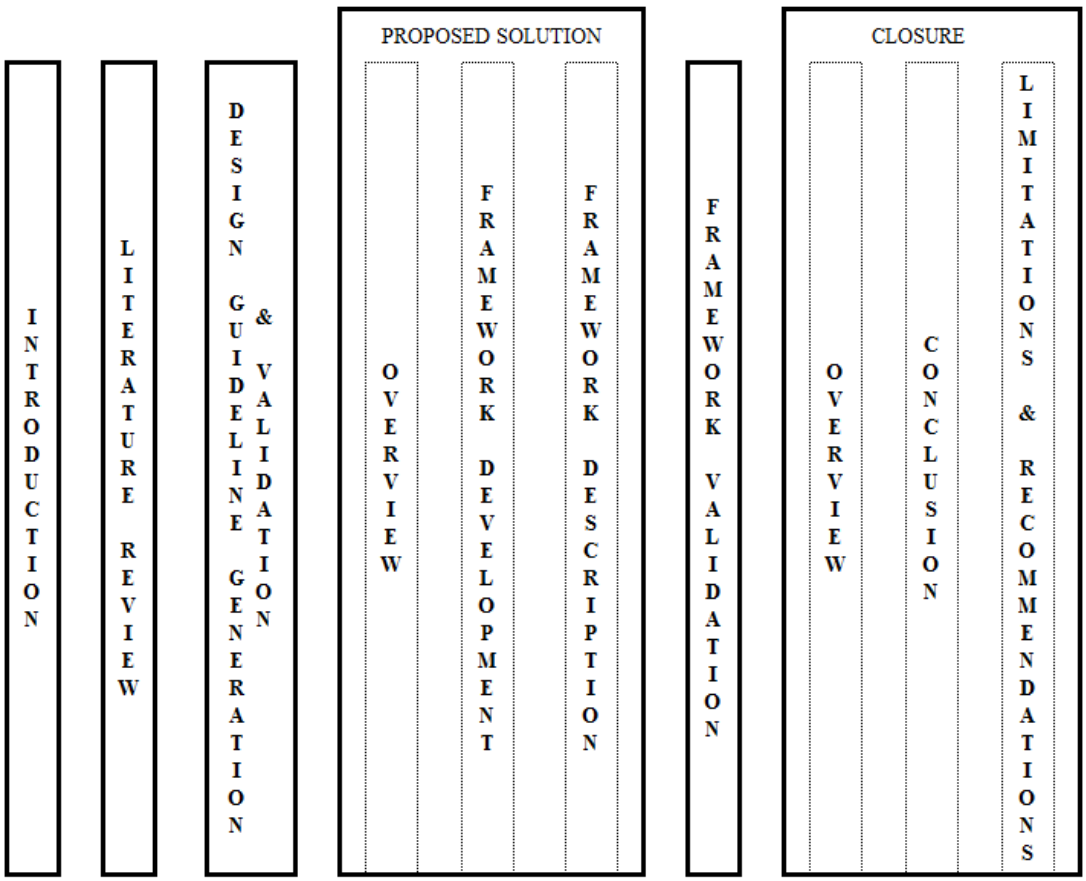


Figure 1.3: Project plan

The project strategy of this research study can be seen in Appendix B in Figure B1. This research study consisted of five core parts: 1) Literature review, 2) Design guideline generation and validation, 3) Proposed framework, 4) Framework validation and 5) Closure. The literature review commenced with a broad field of Enterprise Engineering, after which it is then narrowed down to business models and BMI. This was followed by a description of the theory concerning white spaces.

The literature review then describes links to other academic fields that are essential to the overall understanding of the research study. This direction of focus concerning the literature review is illustrated below in Figure 1.4. Central to the study is the concept of business models, BMI and white spaces - which is highlighted by the red outlines in Figure 1.4.

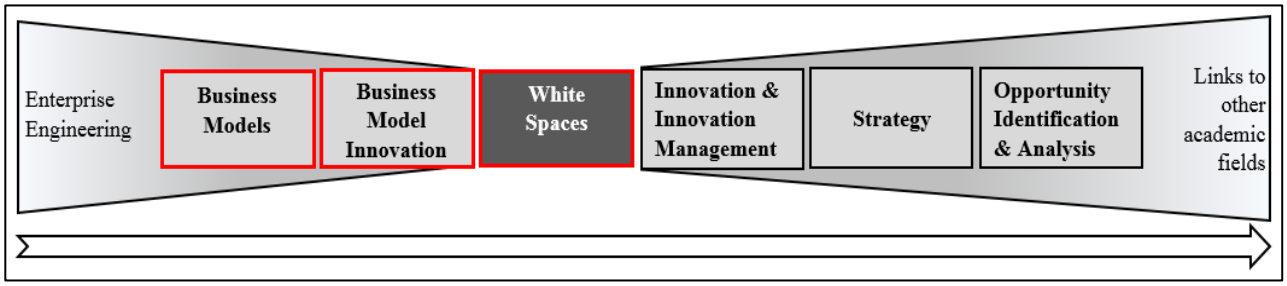


Figure 1.4: Literature review - Direction of focus

The literature review was then summarised and synthesised. The second part of the research study, the design guideline generation and validation, identified questions and theoretical concepts within the literature review which was converted to statements and then validated by experts using a Delphi technique. The proposed framework, consisting of the generation and description of the white space BMI framework, was executed through an analysis of the literature review and by using the final validated design guidelines.

The fourth part, the framework validation, was accomplished through a one-round expert validation. The final and fifth part, the closure, provided an overview of the dissertation, concluded the research study and discussed the limitations encountered as well as possible future recommendations. The following section describes the delineation of the dissertation.

1.7 Delineation

It is imperative to state and outline the scope and the boundaries of the project, before commencing with a research study. This is done so that the execution of the study can remain focused on its intentional purpose. In this section, the delimitations, which are the explicit boundaries for the study, are set and the limitations or conditions outside the researcher's control are stated. Four main delimitations surrounding the research study are listed below:

- The evaluation of the outcome of the final decision was not to be examined. Therefore, a final innovative business model was not tested in real practice and analysed. This is outside the scope for a Master’s degree.
- The white space BMI framework represented a mechanism which is supportive, generic and guiding in nature. The framework did not intend to be prescriptive, give specific answers to the presented problem or be able to specify which specific decision output must be chosen based on the execution of the framework step. Rather, it acted as a supportive and generic piloting mechanism, which guided the entire process wherein the user had to use his/her own judgement.
- The framework did not delve deeply into the implementation and manage phases of BMI, although these phases were briefly considered.
- The detailed content of each framework step was not validated.

The following section discusses the ethical implications of the research study.

1.8 Ethical implications of the research

Simmons (2009) states that the underlying principle of ethics is to not cause harm of any sort. Simmons (2009) goes on to describe that ethical concerns must be considered before executing a validation process. These ethical concerns include the following: possession of the data, admission of the data, the researcher's responsibility and the purpose of the research.

The above concerns, including various others, were addressed in an extensive application to the Research Ethics Committee (REC) of Stellenbosch University, after which ethical clearance was obtained from the REC to execute the validation processes within this thesis. Each validation participant was emailed a written consent form, which had to be signed and returned to the researcher. This research project did not encounter any ethical or legal implications of any nature. The following section illustrates and describes the dissertation outline.

1.9 Thesis outline

In line with the research design, this research study is organised in a rational way to permit the constant stream of vital concepts. This section outlines chapters 1 to 8.

Chapter 1: Introduction
This chapter aims to introduce the project. It starts off with a background concerning the research study, followed by a discussion of the problem statement and questions, research objectives, research contribution, research design, research methodology, delimitations and limitations, ethical implications and finally the dissertation outline.

Chapter 2: Enterprise Engineering and White Spaces
Chapter 2 forms the first chapter of the literature review. First, Enterprise Engineering is described and this is followed by an establishment of fundamental research domains regarding the research study, namely business models, BMI and white space opportunities.

Chapter 3: Links to other academic fields
Chapter 3, which serves as a continuation of the literature review, serves as a bridge for Chapter 2 to other related academic fields that are important, to obtain an effective understanding of the research study. The field of innovation and innovation management is introduced along with a description of its prominent frameworks and types, after which the concept of change management is considered. This is followed by a discussion of strategy and its relationship to business models and BMI. Finally, a description of how to identify and analyse a market opportunity is provided.

Chapter 4: Literature Review Summary and Synthesis
Chapter 4 aims to summarise and synthesise the literature review. A detailed description of Chapter 2 and 3 is given, along with a summary of their respective structural business model, BMI and innovation frameworks. A synthesis is then conducted on the literature review in terms of the components of a business model, design guidelines and critical process stages.

Chapter 5: Design Guideline Generation and Validation
Business model building block design guidelines are generated in Chapter 5 and then validated through a Delphi approach, using an online survey. The chapter discusses and describes the theory of validity, the method and approach to data collection, the survey design, as well the results obtained and the analysis thereof.

Chapter 6: Proposed Solution
This chapter generates, illustrates and describes the proposed solution to the research problem. An overview, development and description of the framework is provided. Each incremental step within the framework is described in line with its objectives, motivations, inputs, actions and outputs. The framework is generated and developed to adhere to the stated key features and research study's objectives.

Chapter 7: Framework Validation
Chapter 7 validates the proposed solution, in the form of a white space BMI framework, to the problem. This is done by a one-round expert analysis through an online survey. The validation process is briefly described, after which the results are presented and analysed and finally, the relevant refinements are made to the framework in line with the expert comments.

Chapter 8: Closure
Chapter 8 is the final chapter of the thesis and acts as the conclusion. Firstly, an overview of the research project is given, followed by the conclusion of the study. Finally a discussion of the limitations and future recommendations of the study is provided.

The outline of the thesis is clearly illustrated in Figure 1.3. This figure represents a map for the reader to follow and keep track of the research process. It will be shown at the beginning of every chapter.

1.10 Chapter summary

Chapter 1 introduced the research study by starting off with a comprehensive background of the proposed topic. The research problem's statements, questions, objectives and contributions were explicitly listed and stated. The main objective of the study is to develop a white space BMI framework - containing appropriate processes, tools and building-block design guidelines - that will assist companies to make better-informed decisions on how to systematically identify a white space opportunity and develop an innovative business model. This chapter described the project's research design, research methodology and delineation. Finally, the ethical implications of the research study were addressed followed by the outline of the thesis. The following chapter forms the first part of the literature review.

CHAPTER 2

ENTERPRISE ENGINEERING AND WHITE SPACES

Chapter 2 is the first chapter of the literature review and therefore serves as its introduction. The field of Enterprise Engineering is defined and discussed as a discipline, after which the concept of enterprise architecture and the goals of Enterprise Engineering are described in Section 2.1. Section 2.2 introduces the concept of a business model with regards to its various definitions and existing prominent models. Business model innovation (BMI) in Section 2.3 follows with its various definitions, typologies, approaches, enablers, barriers, implementation problems and when it is required. Finally, the key concept of a white space is explained in Section 2.4. Figure 2.1 below illustrates the position of Chapter 2 in relation to the research study.

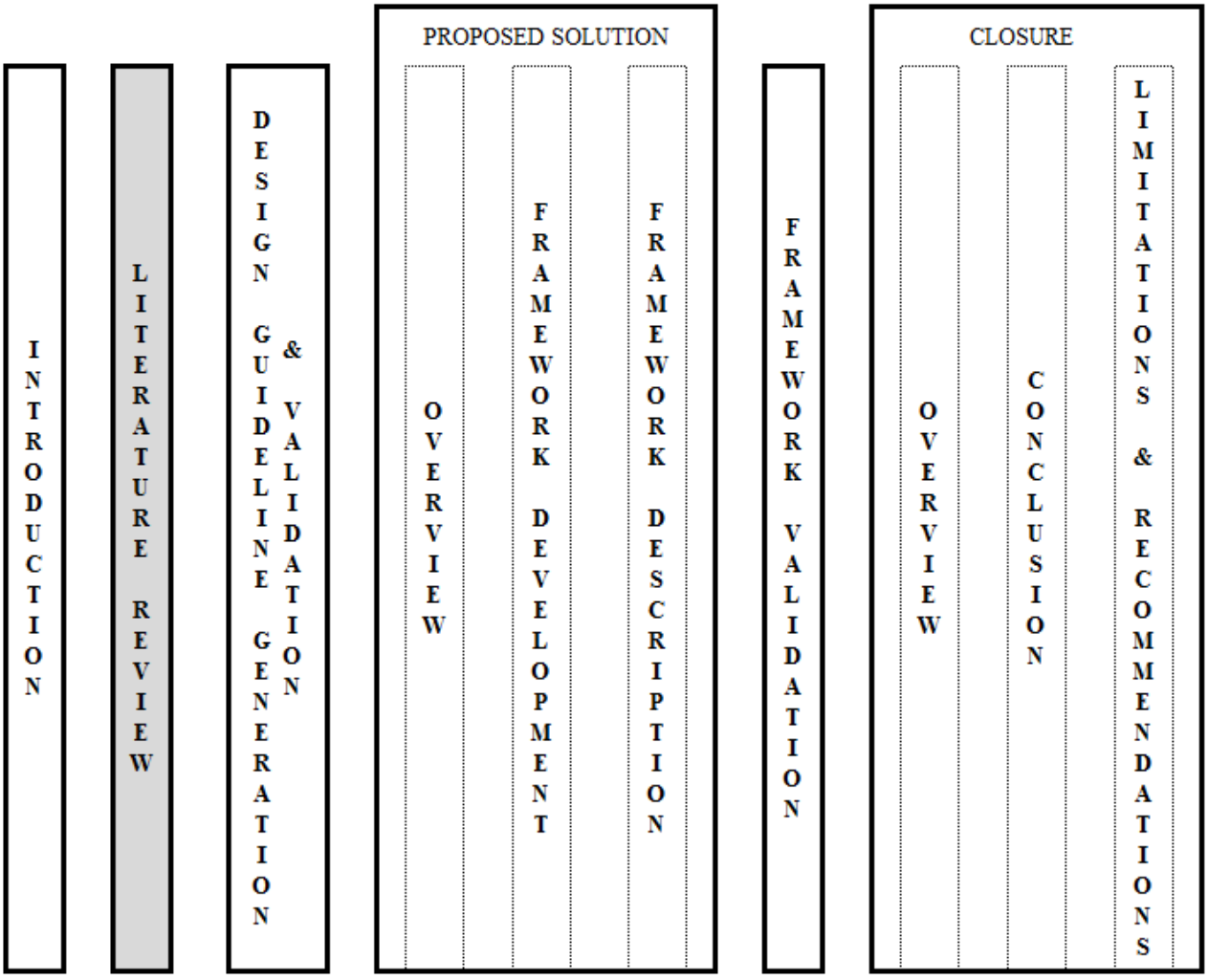


Figure 2.1: The position of Chapter 2 relative to the research study

2.1 Enterprise engineering

Enterprise Engineering is the parent academic field within Industrial Engineering that encompasses the entire research study. Enterprise Engineering is first defined and then the discipline of Enterprise Engineering is discussed further in terms of its global view and principles and practices as required by Liles *et al*. (1995). Finally, the concept of enterprise architecture is described followed by a brief description of the goals of Enterprise Engineering.

2.1.1 Definition

An engineer specialising within Enterprise Engineering must be able to address the crucial question of: "How to design and improve of all elements associated with the total enterprise using engineering and analysis methods and tools to more effectively achieve its goals and objectives?" (Liles *et al*., 1995). Benjamin *et al*. (1995) define Enterprise Engineering as, "the use of scientific methods and tools to analyse and design enterprises". Liles *et al.* (1995) elaborated this definition further to, "a body of knowledge, principles, and practices having to do with the analysis, design, implementation, and operation of the enterprise".

Additionally, Industrial Engineering serves as a platform on which an analytical process can be modelled for the enhancement and installation of incorporated systems involving people, material, information, equipment and energy (Liles *et al.*, 1995). This platform therefore provides a complete perspective of a business which is required for an effective application of Enterprise Engineering.

2.1.2 Global perspective

It is important to set the platform for Enterprise Engineering from a global perspective. This creates a better understanding of how this discipline is globally viewed. A global perspective must be multifaceted and extensive enough so that it can be separated into sub-disciplines (Keen, 1980). Industrial Engineering can be used as an example as it can be separated into sub-disciplines such as ergonomics, factory arrangement design, and engineering economy. All the sub-disciplines have to do with a specific good, procedure or market type (Smith, 1983).

The list below shows three global perspective assumptions that illustrate the profundity of Enterprise Engineering:

1. An enterprise can be perceived as a multifaceted system.
2. This system perception contains procedures that can be designed independently and holistically.
3. The use of engineering rigor in transforming the enterprise.

In an Enterprise Engineering model, a business is regarded as a multifaceted system entailing procedures that can be designed to achieve certain organisational goals, according to Liles *et al.* (1995). A global perspective is therefore achieved by the constant sustainable nature of an enterprise, which is acknowledged by Enterprise Engineering.

2.1.3 Principles and practices

The global view is considered within principles, which is also where the philosophical approach is defined to solve problems. Liles *et al.* (1995) state that practices consist of the processes, designs, methods and theories that are utilised to apply the knowledge platform of the discipline. Moreover,

principles and practices are used together to set the platform of a discipline, in this case Enterprise Engineering, as well as encourage research. Systems of theory, abstraction, design, and implementation serve as bulks of knowledge within the engineering discipline (Liles *et al.*, 1995).

Principles and practices must be organised rationally, to accommodate decision-making, critical thinking and problem solving. The main components of an engineering practice are listed below (Liles *et al.*, 1995):

1. Theory: sets the platform for clear principles in which the discipline can be developed further. Additionally, theory initialises and concentrates the expansion of principles and practices.
2. Abstraction: also known as modelling, serves as a method in which the focus of study can be signified in a certain way which can be tested.
3. Design: is an incremental creation and analysis of alternatives that can meet acknowledged needs.
4. Implementation: serves as a vital component of the engineering process. The customer as well as the designer both evaluate the design to achieve enhanced improvements.

2.1.4 Enterprise architecture

It is well known that to have a complex system or organisation under control and successfully managed, architecture is required. Dietz *et al*. (2013) defines enterprise architecture through a concept called the β-theory as, "the deliberate restriction of design freedom, and of enterprise design, which covers the function design, construction design, and implementation design phases in the generic system development process".

According to Lankhorst (2009), an architecture definition which houses both the design and the general principles, can be defined as "the fundamental organisation of a system embodied in its components, their relationships to each other, and to the environment, and the principle guiding its design and evolution". Lankhorst (2009) goes on to suggest a briefer definition of architecture is a "structure with a vision". From these definitions, architecture delivers a unified perspective of the entire system being studied or planned in terms of Enterprise Engineering (Lankhorst, 2009).

Dietz *et al.* (2013) state that to guarantee that enterprises operate in a united, cohesive and strategic way, their progressive procedures and assisting systems must be handled by useful and structural design principles, which are able to direct the design or redesign of the organisation. A levelled, clear and reliable set of such principles within a specific system group is called architecture (Dietz *et al.*, 2013). The sum of architectures within an enterprise at some point in time, is termed the enterprise architecture. *Requirements* relate to an explicit system that must be designed, while the term *architecture* relates to a systematic group (Dietz *et al.*, 2013).

Enterprise Engineering architecture enables a general structural view of a business as well its processes, application platforms and the technical infrastructure. A business must make known the diverse facets and domains, including their associated relationships. Enterprise architecture also offers a normative guide for planning, to enable the organisation to run as a united and cohesive whole, through which numerous business goals can be achieved (Lankhorst, 2009). Not only must the functional aspects of an enterprise, with regards to generating goods and services in Enterprise Engineering, be addressed, but also the capability of the organisation to take hold of future opportunities. Therefore as the design must permit organisational alterations and transformations (Hoogervorst, 2009).

2.1.5 Enterprise engineering goals

According to Dietz *et al.* (2013), the objective of enterprise engineering is to be hypothetically, conceptually and systematically concrete and correct when chasing after the following three goals:

- Intellectual manageability**:** Appropriate structural and operational theories with regards to enterprises are required. This necessity is needed to obtain and retain an understanding and impression of enterprises, their alterations, and to control its intricacies.
- Organisational Continuity: For an enterprise to operate efficiently and implement alterations effectively, they must run as a united and assimilated unit, considering every variable within the equation that is relevant. Organisational continuity does not naturally occur, but must be planned.
- Social devotion: The human aspect is crucial for enterprise engineering to exist. Employee participation is vital for a firm's productivity, output quality, education and innovation and coping with an enterprise's changing aspects and developments. For this to occur all employees must be empowered, task capable and be allowed access to all information to complete their respective tasks.

Section 2.2 introduces and describes the important concept of a business model.

2.2 Business models

It is imperative that a good understanding is obtained of the concept of a business model for the purposes of this research study. Firstly, the concept and history of business models are explained in Section 2.2.1, after which a business model is defined in Section 2.2.2. This is followed by a description of four different, but prominent types of structural business model frameworks in Section 2.2.3.

2.2.1 Business models as a concept and history

In 2005, Shafera *et al.* (2005) stated that up to date, no concrete definition of a business model exists. However, a few years later Zott *et al.* (2010) tackled the dilemma by searching through 1 253 business-model-related academic articles from various sources. In the end, they concluded that even though there is wide range of academic material available on the topic of business models, academics still do not agree on a common definition for a business model.

A good starting point will be to look at the definitions of *business* and *model* separately. The term *business* is defined by the Oxford dictionary as, "a commercial activity or a person's regular occupation, profession or trade" (Oxford, 2017). On the other hand, the term *model* is defined as a "representation of a proposed structure which is used as an example to follow or imitate" by the Oxford dictionary (Oxford, 2017). From these two definitions it can be concluded that a business model is a construct that tries to simplify business undertakings and make it further tangible. The deficiency in business model definitions can be attributed to the novelty of business models as an academic topic. The introduction of computers, as well as the internet in the 1990s, spurred on the growth of academic and non-academic business model articles (Zott *et al.*, 2010), as illustrated in Figure 2.2 at the top of the following page.

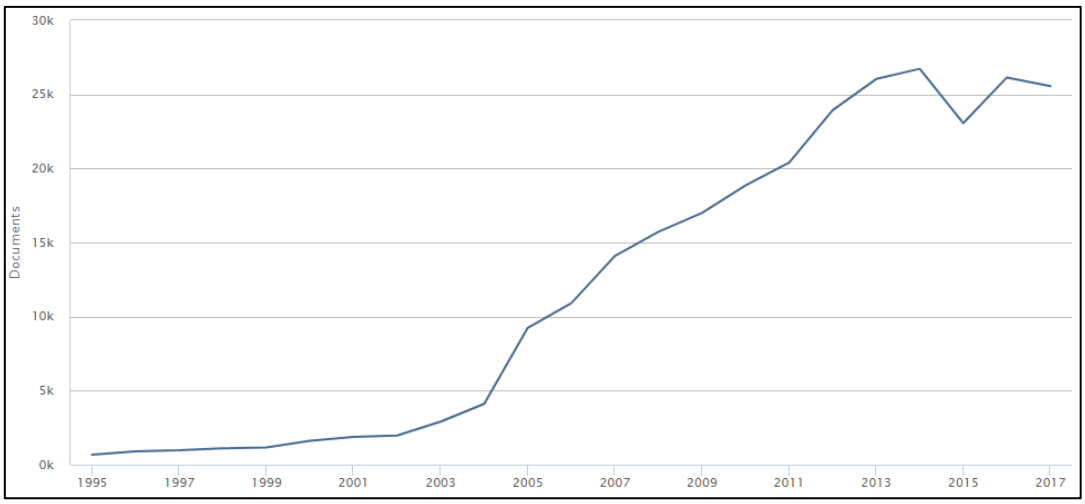


Figure 2.2.: Number of recently published business model articles
(Source: Scopus, 2017)

2.2.2 Business model definition

The lack of a common business model definition does not mean that little business model definitions exist. Zott *et al.* (2010) studied 10 core definitions that they discovered, seen in Table 2.1 below. Table 2.1 illustrates the various dimensions that the scholars wish to cover with the term *business model*.

Table 2.1: Ten uncovered business model definitions

Author	Definition
Timmers (1998)	The business model is "an architecture of the product, service and information flows, including a description of the various business actors and their roles; a description of the potential benefits for the various business actors; a description of the sources of revenues."
Hamel, (2000)	"A Business Concept is a radical innovation that can lead to new customer value and change the rules of the industry." The business concept is directly related to the business model since the latter is "nothing else than the business concept implemented in practice."
Amit & Zott (2001)	The business model depicts "the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities."
Weill & Vitale (2001)	A business model is "a description of the roles and relationships among a firm's consumers, customers, allies, and suppliers that identifies the major flows of product, information, and money, and the major benefits for participants."
Chesbrough & Rosenbloom, (2002)	The business model is "the heuristic logic that connects technical potential with the realization of economic value"
Dubosson-Torbay *et al.* (2002)	"A business model is nothing else than the architecture of a firm and its network of partners for creating, marketing and delivering value and relationship capital to one or several segments of customers in order to generate profitable and sustainable revenue streams."
Magretta (2002)	Business models are "stories that explain how enterprises work. A good business model answers Peter Drucker's age old questions: Who is the customer? And what does the customer value? It also answers the fundamental questions every manager must ask: How do we make money in this business? What is the underlying economic logic that explains how we can deliver value to customers at an appropriate cost?"
Morris *et al.* (2005)	A business model is a "concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics are addressed to create sustainable competitive advantage in defined markets." It has six fundamental components: Value proposition, Customer, Internal processes/competencies, External positioning, Economic model, Personal/investor factors.
Shafer *et al.* (2005)	A business model is "a representation of the underlining core logic and strategic choices for creating and capturing value within a value network"
Johnson *et al.* (2008)	Business models "consist of four interlocking elements that, taken together, create and deliver value." These are: Customer value proposition, Profit formula, Key resources, and Key processes.

(Source: Zott *et al.*, 2010)

Additionally, Osterwalder & Pigneur (2010) defined a business model, as describing "the rationale of how an organisation creates, delivers, and captures value." Zott *et al.* (2010) stated that a mutual definition was still absent. The definitions in Table 2.1 do indeed differ from one another, yet they show some shared views. A cross-sectional tactic was executed by Zott *et al.* (2010), to discover common themes from various business model definitions found in literature. They went on to suggest a business model as "a new unit for analysis, a system-level concept, centred on activities, and focusing on value", where the business model is:

1. An original method of examination among firms and system levels.
2. An all-inclusive and complete view on how enterprises do business.
3. Emphasis on activities.
4. Focusing on value - both value capture and value creation.

According to Breiby & Wanberg (2011), the above definition, which highlights the common elements between the various business model definitions from Zott *et al.* (2010), is one of the most comprehensive studies executed in literature to try to obtain a current and common definition for a business model and is thus the chosen definition for this thesis.

2.2.3 Types of structural business models

This section describes four different prominent types of business models and their internal structural components.

2.2.3.1 Business Model Canvas

The Business Model Canvas, designed by Osterwalder & Pigneur (2010), is the first business model process and approach to be described. It is currently the most popular and widely used business model framework and tool (De Reuver *et al.*, 2013; Meerten *et al.*, 2012). It was chosen due to its high recurring popularity across all the business model literature, as well as its various components which allow for a detailed analysis. Although, it is easy and simplistic and it increases the tangibility of the business model concept (Chesbrough, 2010).

The Business Model Canvas is a framework that describes a business model by using nine building blocks that encompass four sectors of any company, namely clients, offer, structure and financial feasibility. This model acts as a plan that can be executed through the company's frameworks, processes and systems (Osterwalder & Pigneur, 2010). A labelled illustration of the Business Model Canvas and its nine building blocks can be seen in Figure 2.3 on the following page.

Customer Segments
All businesses have some sort of important customer market. For a customer market to exist, a need that calls for a distinctive offer has to be present. According to Osterwalder & Pigneur (2010), the Customer Segment's building block describes the dissimilar customer or organisational groups that the business is trying to reach and serve. They go on to state that a company must decide which customers to serve and which to ignore. There are many different types of customer market segments that exist. Examples of customer market segments are listed below Figure 2.3 on the following page (Osterwalder & Pigneur, 2010).

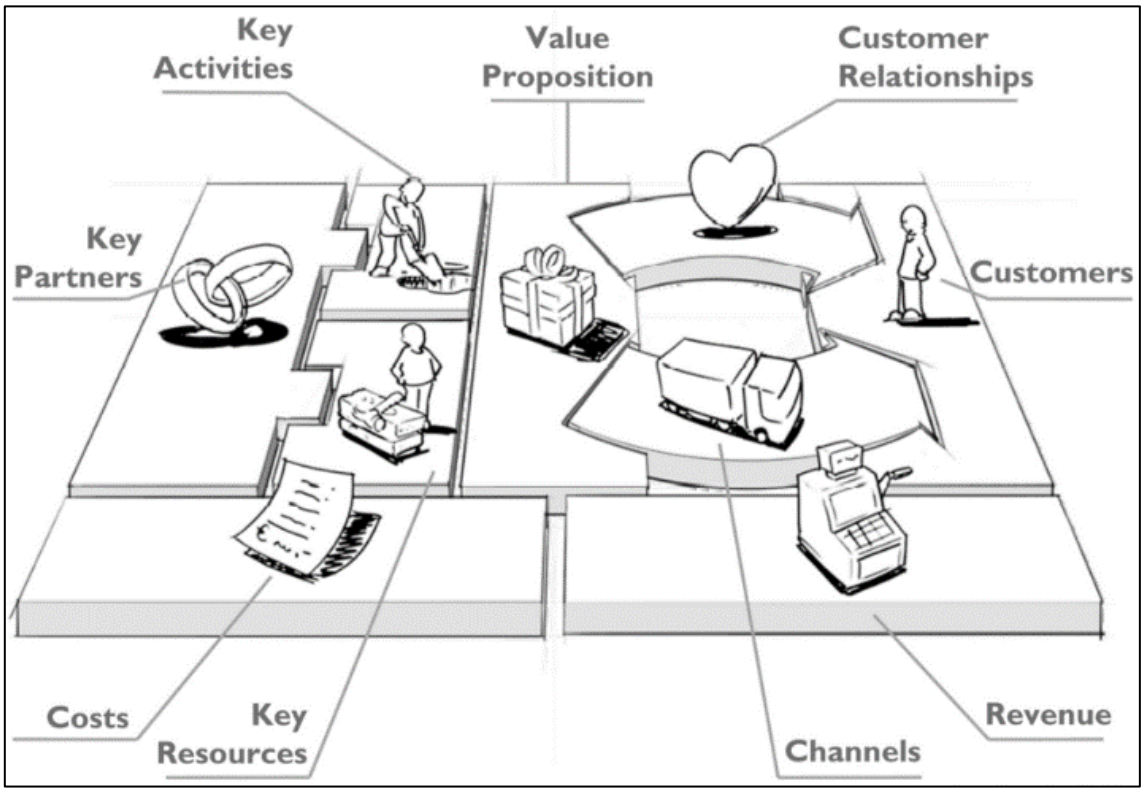


Figure 2.3: The nine building blocks of the Business Model Canvas
(Source: Osterwalder & Pigneur, 2010)

- Mass markets: consist of a wide range and big collection of customers with the same problems and needs.
- Niche market: entails a specialised group of customers with specific requirements. Business models that cater to niche markets are found in supplier-buyer associations.
- Diversified market: caters to completely unrelated client sectors with very different needs and problems.
- Segmented market: markets are divided into their different needs and problems. Each are offered different value propositions.

Finally, according to Osterwalder & Pigneur (2010), groups of customers signify different segments when: 1) Customer groups are attended to by different Distribution Channels, 2) Customer group needs necessitate and validate a separate offer, 3) Customer groups need dissimilar Customer Relationships, 4) Customer groups have considerable dissimilar profitability's and 5) Customer groups are prepared to pay for dissimilar facet of the offer.

Value Proposition

Once a customer market has been established, value must be created for the client. A Value Proposition generates value towards the customer market through different factors that cater for that specific market's needs, which is the bundle of goods or services. Essentially, it acts a solution to a client problem or as a satisfaction to a client need (Osterwalder & Pigneur, 2010). Finally, qualitative values of a Value Proposition consist of design, customer experience, accessibility, brand and usability, while quantitative values are performance, price and cost reduction (Osterwalder & Pigneur, 2010).

Channels

For a Value Proposition to be delivered to a customer, a Channel, also known as a Distribution Channel, must exist that describes how the business communicates and delivers that specific Value Proposition. A channel has several functions, including raising customer awareness, customer evaluation of the business and providing customer support after a purchase has been made (Osterwalder & Pigneur, 2010).

Two main types of channels exist, namely own and partner channels from which it can be distinguished whether the channel is direct or indirect. Additionally, there are five main phases within every channel. This concept is illustrated in below Figure 2.4.

Channel Types			Channel Phases				
			1. Awareness	2. Evaluation	3. Purchase	4. Delivery	5. After sales
Own	Direct	*Sales force*	How do we raise awareness about our company's products and services?	How do we help customers evaluate our organization's Value Proposition?	How do we allow customers to purchase specific products and services?	How do we deliver a Value Proposition to customers?	How do we provide post-purchase customer support?
		Web sales					
	Indirect	*Own stores*					
Partner		*Partner stores*					
		Wholesaler					

Figure 2.4: The different types of channels and phases
(Source: Osterwalder & Pigneur, 2010)

Own channels, especially direct channels, are often expensive to build and maintain. Partner channels result in less returns, but have the advantage of having a wide reach as well as profit from partner strengths. A company needs to find the correct mixture of channels to generate a successful and positive client experience while maximizing the company's profits (Osterwalder & Pigneur, 2010).

Customer Relationships

The Customer Relationship building block defines the type of connection the business has with its customer market. This is an important connection as it influences the entire experience a customer might have. The relationships are compelled by the following three drivers (Osterwalder & Pigneur, 2010): 1) Customer acquisition, 2) Customer retention and 3) Boosting sales.

Additionally, various examples of Customer Relationships exist. Three are listed below (Osterwalder & Pigneur, 2010):

- Personal assistance: is all about human interface through a client representative at the time the sale is made or through other means such phone calls or emails.
- Self-service: entails the company providing the necessary infrastructure for the customer to help themselves where there is no direct.
- Automated services: assembles a complex type of customer self-service with automatic procedures.

In addition, Osterwalder & Pigneur, (2010) state that the cost of the customer relationship must be considered.

Revenue Streams

Revenue Streams are the money networks that a business would generate from a specific customer market who is willing to pay for the created value. Osterwalder & Pigneur (2010) stress the importance of Revenue Streams by stating that it acts as the arteries to the entire business model. Finally, two main types of revenue streams that exist are: 1) Transaction revenues resulting from one payments and 2) Recurring revenues consisting of recurring payments.

Common methods of creating revenue streams consist of a sale of assets, usage fees, subscription fees, brokerage fees, renting, advertising and licensing (Osterwalder & Pigneur, 2010). The two chief types of pricing mechanisms which revenue streams can be categorised in are the following: 1) Fixed Menu Pricing which are prices that are predefined and are centred on static variables and 2) Dynamic Pricing which are changing prices that are centred on market conditions.

Key Resources

The most important assets that form the core of an operating business model is found within the Key Resources building block. The different building blocks are maintained by the Key Resources, by allowing a company to offer the Value Proposition profitably, spreading it to other markets, keep customer relationships and finally by obtaining cash through revenue streams (Osterwalder & Pigneur, 2010). Key Resources consist of the following resources (Osterwalder & Pigneur, 2010):

- Financial: consists of cash, credit channels or a stock option pool for contracting important staff.
- Physical: consists of physical assets such as manufacturing facilities, buildings, vehicles, machines, systems, point-of-sales systems and distribution networks.
- Human: people in general are extremely prominent in an enterprise, especially within inventive and knowledge trades.
- Intellectual: entails trademarks, proprietary information, patents, copyrights, partnerships and client databanks.

Key Activities

Similar to Key Resources, the Key Activities define the most imperative activities that a business undertakes to function effectively and maintains the other buildings blocks in the same manner as the Key Resources (Osterwalder & Pigneur, 2010). Key Activities include (Osterwalder & Pigneur, 2010):

- Production: entail planning, producing and delivering a good with excellent quality.
- Problem solving: coming up with brand new ideas and answers that are found when the business mode consists of knowledge management and continuous training procedures.
- Platform/Network: Business models with a platform Key Resource at their core are subject to network or platform Key Activities. Types of functioning platforms include networks, matchmaking platforms, software and brands. Examples include eBay, Visa and Microsoft.

Key Partnerships

Key partnerships describe a system framework involving all the company's suppliers and partners that allow the business model to operate successfully (Osterwalder & Pigneur, 2010). These partnerships are typically created with other companies to reduce company risk, increase capital, ensure better access to resources as well optimize each other's business models. Finally, Osterwalder & Pigneur (2010) describe four different types of partnerships that currently exist: 1) Strategic

alliances between non-competitors, 2) Coopetition which involves forming partnerships between competitors, 3) Joint ventures to develop new businesses and 4) Buyer supplier relationships to assure reliable supplies.

Cost Structure

The final building block is the Cost Structure. It encompasses all the costs that are incurred when a business model is functioning. Costs are incurred during value generation, value delivery, maintaining customer relationships and creating revenue streams. It includes a company's direct costs and overheads. According to Osterwalder & Pigneur (2010) there are two main types of business model Cost Structures: 1) Cost-driven, which entails having the leanest cost structure while maximizing production and 2) Value-driven, which concentrates on the generation of value by including superior Value Proposition characteristics and a high personalised service level. Finally, Cost Structures can have the following characteristics: fixed costs, variable costs, economies of scale and economies of scope (Osterwalder & Pigneur, 2010).

In addition, Osterwalder & Pigneur (2010) designed a Business Model Canvas template to assist businesses to understand their own Business Models. Each building block, containing specific key questions, of the Business Model Canvas can be seen Appendix C.

2.2.3.2 Four Box Business Model

The four-box business model framework is the second business model process and approach to be described. The structure of this business model can be seen below in Figure 2.5.

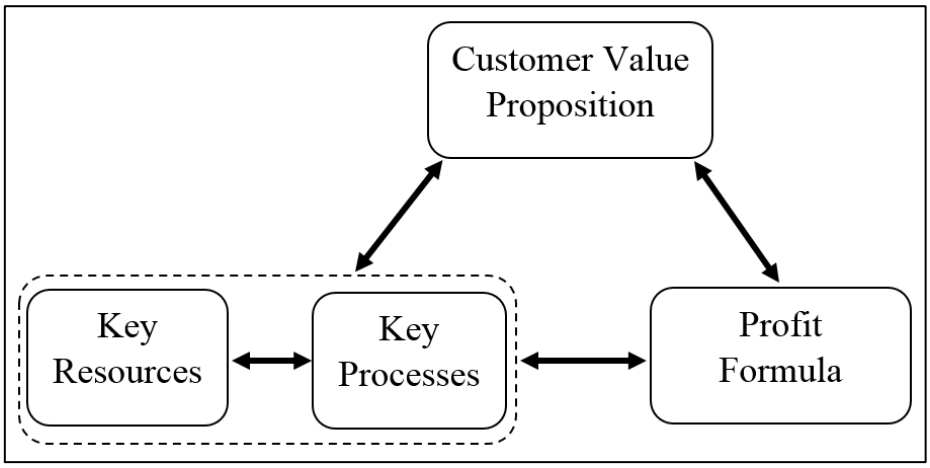


Figure 2.5: Four Box Business Model
(Source: Johnson, 2010b)

Customer Value Proposition

The Customer Value Proposition (CVP) is described in a manner by Johnson (2010b) who uses the "Jobs to be done" concept. This concept is supported by Christensen *et al.* (2007) who stress the activity of "getting the job done". This means that an excellent CVP provides a solution to a central problem experienced by the client.

Therefore, an exceptional CVP possesses the ability to understand all the levels within the procedure of getting the job done. Subsequently, according to Johnson (2010b), a Value Proposition for a given customer consists of the following two points: 1) Jobs to be done (JTBD), which entails resolving a vital, central and chief customer problem and 2) Offering, which involves fulfilling the customer job or problem. The combination of these two points structure a successful CVP for any type of business model (Johnson, 2010b).

The complete and general value can be derived from the following three points for a successful CVP for a given customer (Johnson, 2010b): 1) How significant and key the JTBD is to customers, 2) How fulfilled and pleased customers are with present solutions and 3) How successful the solution executes the required job when compared to other solutions.

Identifying the JTBD is the first key step when generating a new CVP. The more significant the job, the more improved the fit is between the offering and its job. This leads to a lower market price for the offering, which results in a more significant value created for the clients from the Value Proposition (Johnson, 2010b).

The CVP formula for a customer can be seen below in Figure 2.6.

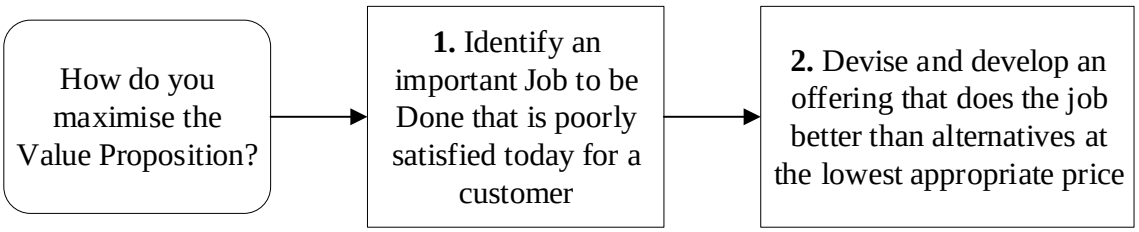


Figure 2.6: CVP formula
(Source: Johnson, 2010b)

To generate a CVP for a white space specifically, companies must turn away from attempting to identify what type of goods the public wants to buy and rather turn to figuring out what the public wants to get done within their environment.

Profit Formula

Johnson (2010b) defines the Profit Formula as, "The economic blueprint that defines how the company will create value for itself and its shareholders. It specifies the assets and fixed cost structure, as well as the margins and velocity required to cover them". The Profit Formula consists of the revenue model, target unit margin, resource velocity and finally the cost structure.

Revenue model

The revenue model is defined by Equation 1 below:

$$Revenue = (Product\ price) \times (Quantity) \quad (1)$$

The Profit Formula has a strong connection with the CVP because the price that is being offered is vital to both. The price of the offering essentially translates the value of the product into a physical number (Johnson, 2010b).

The measure of quantity is often used within the manufacturing sector. While in the service industry quantity is measured as the amount of consumed time to execute the service. To define quantity more clearly, the three points below must be determined (Johnson, 2010b):

- The number of clients the organisation will have.
- The number of units per client per transaction the organisation will sell.
- The number of transactions the organisation expects.

An extra and related point that must be considered is the quantity of other income the organisation can expect from associated goods and services. Although this point is not directly linked to the offering's cost structure, it will influence its success in the future (Johnson, 2010b).

Target unit margin

The target unit margin can be defined by Equation 2 below:

$$Target\ unit\ margin = \frac{Operating\ profit}{Number\ of\ units} \quad (2)$$

According to Johnson (2010b), Equation 2 above should be enough to satisfy the organisation's overhead costs, as well as attain the required profit at the organisation's aimed quantity. One of the main reasons why businesses do not chase after and develop big growth opportunities, is because they look at a new business model's margins in seclusion and conclude that it might not be high enough (Johnson, 2010b). Top executives, strategists and managers must realise that the objective is not to keep a certain margin constant, but to achieve the margins required to obtain the aimed profits of the organisation.

Resource velocity

Johnson (2010b) states that resource velocity can be defined by the speed at which resources are consumed, to maintain the target quantity. Not only does it stipulate the magnitude of products a business can manufacture, but also the quantity it can develop, plan, manufacture, pay for, transport, repair, sell and store regarding a certain amount of investment over a certain period throughout the supply chain (Johnson, 2010b). Resource velocity entails the physical turnover of inventory and how the business model's overheads, related resources and set processes will support its turnover.

Resource velocity determines how the quantity of production will be accomplished. It defines the business model's capacity to aid the Value Proposition. The better the resource velocity of an organisation, the bigger quantity of the organisation's offering can be manufactured (Johnson, 2010b).

Resource velocity is often very stiff in most businesses. The production area, line and operations are calibrated towards a certain resource velocity over time and is therefore often taken to be absolute. This leads to these businesses anchoring boundaries on their horizons and turning away (at times lethally) from new initiatives, since those production elements might not be suitable for a new Value Proposition. Organisations must instead investigate the possibility of a new profitable business model that is sufficient for the Value Proposition (Johnson, 2010b).

Cost structure

The cost structure within the Four Box Business Model framework is very similar to the cost structure that of the Business Model Canvas. However, Johnson (2010b) states that successful organisations usually contain clear cost structures with overhead requirements that are challenging to alter. This leads to an inclination to start with cost structures that are already existent when generating the cost structure of a new business model. However, this is incorrect and the opposite is actually true. The overhead must first be calculated from the necessities of the Value Proposition (Johnson, 2010b).

Key Resources

According to Johnson (2010b), Key Resources are those resources required to deliver the CVP in a profitable manner. They may include people, technology, products, equipment, information, channels, partnerships and brands.

Key Processes

Johnson (2010b) defines Key Processes as, "the means by which a company delivers on the CVP in a sustainable, repeatable, scalable and manageable way". Key Processes can include product design and development, advertising, training, outsourcing, IT as well as rules, norms and metrics which are described further below.

Company rules, social norms and success metrics

Company rules, social norms and accomplishment metrics link each of the boxes within the Four Box Business Model framework together and stops the entire system from becoming unbalanced. They guarantee that a company can ensure a constant provision and transportation of the Value Proposition, as well as satisfy the Profit Formula simultaneously. These rules, norms and metrics essentially maintain present operations and can therefore be the final ingredient in the business model process (Johnson, 2010b). These rules, norms and metrics are defined by Johnson (2010b) below:

- Company rules and success metrics: Loan conditions, supplier conditions, lead times and investment margin requirements.
- Social norms: Magnitude of opportunity required for investment. Includes customer and channel approaches.

The rules, norms and metrics and their relationship with the four-box model framework can be seen below in Figure 2.7.

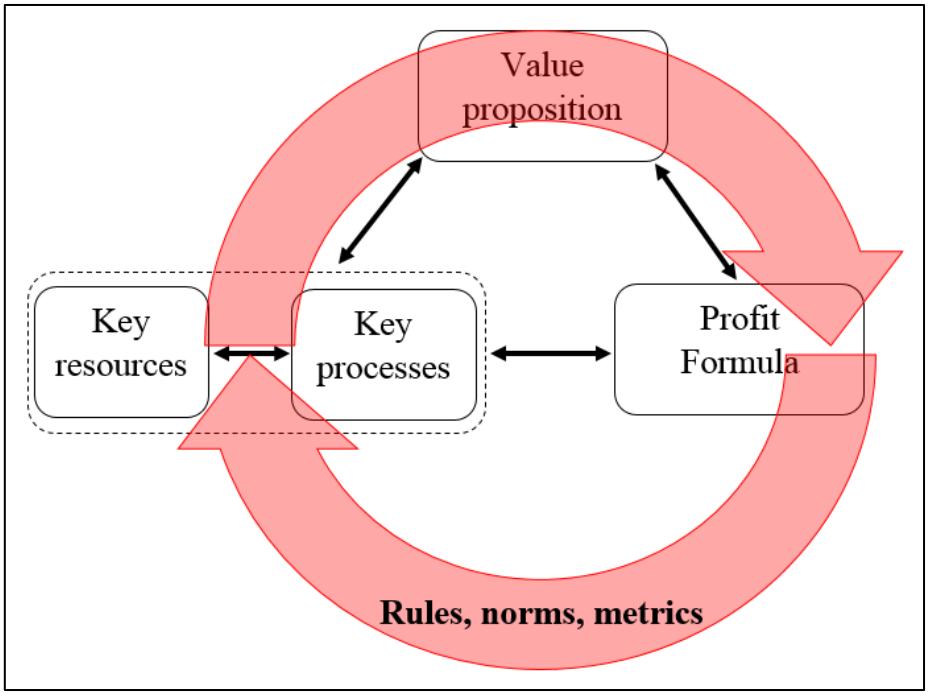


Figure 2.7: Company rules, social norms and accomplishment metrics (Source: Johnson, 2010b)

2.2.3.3 Triangular Business Model

Frankenberger *et al.* (2013) suggested a business model in the form of a triangle. It consists of four components, namely *who*, *what*, *how* and *why*. The triangular business model can be seen in Figure 2.8 at the top of the following page.

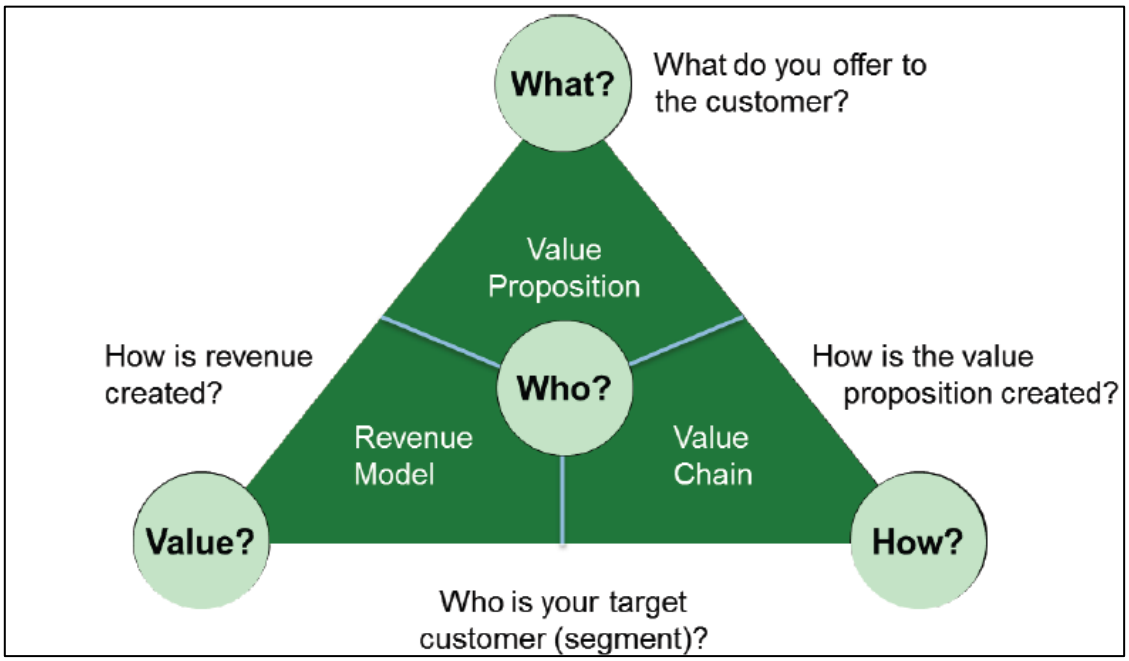


Figure 2.8: Triangular business model
(Source: Frankenberger *et al.* 2013)

Figure 2.8 is explained in the list below according to its four dimensions (Frankenberger *et al*., 2013):

- Who: defines the customer segment that requires to be served. This component is vitally important as supported by Morris *et al.* (2005) where they state that "failure to adequately define the market is a key factor associated with venture failure".
- What: defines the Value Proposition offered to the customer. In other words, it is what they customer values and is often referred to as the Value Proposition.
- How: defines the way that the Value Proposition is created. This entails the activities, resources and processes needed to construct and issue the Value Proposition.
- Value/Why: defines the cost-revenue structure, also known as the revenue model. It defines how money is made by the focal firm what makes it financially feasible.

The triangular business model captures the holistic nature of a firm by having internal and external aspects (Frankenberger *et al.*, 2013). It can therefore be a boundary-spanning concept which describes how a business is situated in and interacts with its environment (Teece, 2010).

2.2.3.4 Value Business Model

Richardson (2008) states that a recurring theme within discussions of business models and strategy is value itself. The Value Business Model, designed by Richardson (2008), is orientated around the concept of value. His business model framework consists of three main components: Value Proposition, Value Creation and Delivery System, and finally Value Capture.

Value Proposition
The Value Proposition, according to Richardson (2008), defines what the organisation will provide to its customers, why the customers would be prepared to buy it as well as describing the organisations method to obtain a competitive advantage. Richardson's (2008) Value Proposition components are: 1) The offering, 2) The customers the business is targeting and 3) The strategy the business will use to obtain customers and obtain a competitive advantage.

Value Creation and Delivery System
This defines how the business will create and deliver its value to its target customers. Additionally, it serves as the source of the business's competitive advantage (Richardson, 2008). The Value Creation and Delivery System components include: 1) Resources and Capabilities, 2) The firm: its value chain, system of activities and business processes, and 3) The firms relative position within the value network: its connections to its target customers, partners and suppliers.

Value Capture
Value Capture defines how the organisation will generate its sales and profit. It consists of the revenue model and the economic model (Richardson, 2008). The revenue model defines the origins of the various revenue streams or the variety of manners in which the firm receives its revenue, for providing its Value Proposition. Richardson (2008) defines the economic model as, "a concept generally used in entrepreneurship literature. It refers to the revenue, costs, and expenses that go into the profit equation. It also includes the timing of exchanges."

The following section introduces the core concept of business model innovation.

2.3 Business model innovation (BMI)

Section 2.3 introduces the important topic of BMI, which is central to the research study. BMI is first defined and then followed by its associated typology. Various BMI processes and approaches, designed by leading authors on the topic, are described after which the enablers and barriers to BMI are discussed. The problems related to implementing a business model is then discussed, followed by a description of the conditions for when BMI is required. Finally, the relation of BMI to firm size is briefly described.

2.3.1 Definition

The rapid development of technology is leading to technology becoming very expensive and causing new technologies to become commoditized (Ranadive, 1999). To be able to succeed this, Chesbrough (2007) suggests that BMI should be the core focus. Chesbrough (2007) goes on to emphasize this by stating that an excellent business model will always succeed an excellent product or idea. Giesen *et al.* (2007) matched the different forms of innovation and their related effect on a company's financial performance, which resulted in BMI having the most pronounced effect on the profit margins, more than any other type of innovations.

BMI has been accepted by literature as its own type of innovation, where it is distinguished from traditional product and process innovations due its goods, channels, activities, processes and corporate architecture (Stampfl, 2015; Amit & Zott, 2001). Although, Bucherer (2011) states that little consensus has been reached on the definition for BMI.

Santos *et al.* (2009) define BMI as, "a reconfiguration of activities in the existing business model of a firm that is new to the product/service market in which the firm competes". This definition stresses the transformation of changing from an old business model to new one suited to that specific industry.

Elaborating on the Business Model Canvas, the definition for a "new" BMI can stem from this concept and is thus innovation within one or more of the nine building blocks of the Business Model Canvas (Breiby & Wanberg, 2011; Stampfl, 2015). To define *new*, Stampfl (2015) goes on to distinguish modular and architectural BMI. Modular BMI entails the alteration of one or more

business model components, while architectural BMI involves a change in the relationship between the components.

However, BMI remains an unclear concept throughout literature (Geterud & Tegern, 2012; Bucherer, 2011). A worldwide CEO research project was conducted by Giesen *et al*. (2007) which produced three different definitions. The taxonomy of BMI can be described by Figure 2.9 below, which includes these three definitions.

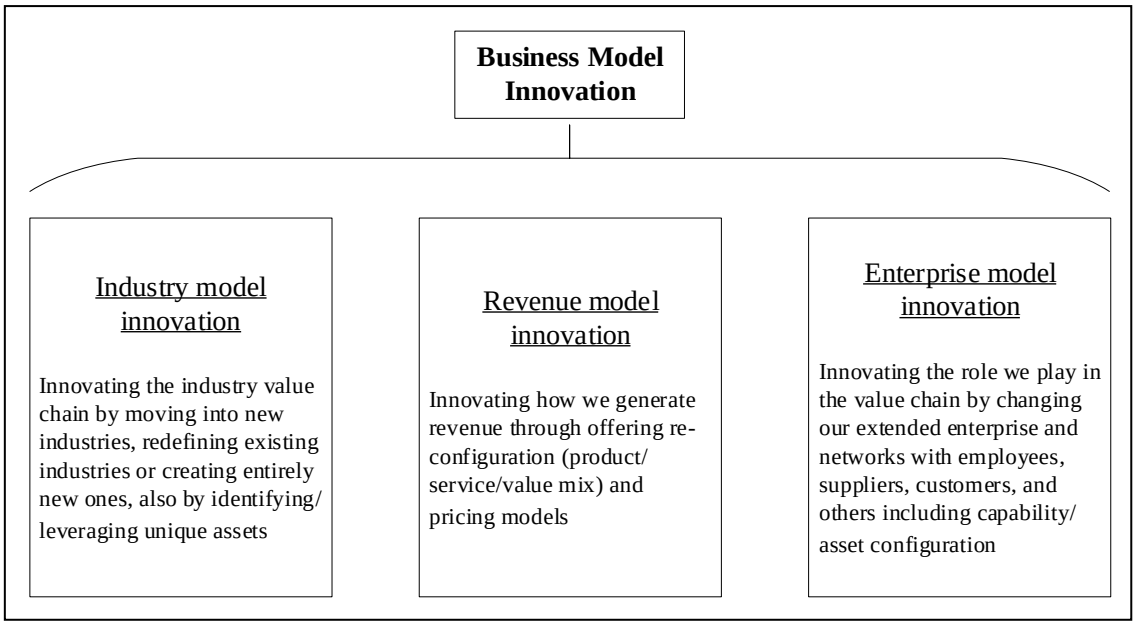


Figure 2.9: A BMI taxonomy
(Source: Giesen *et al.*, 2007)

Giesen *et al.* (2007) concluded that enterprise model innovation seems to be the most common type of innovation in most successful companies, by focusing on cooperations and partnerships. Industry model and revenue model innovation had no major performance.

Johnson (2010b) states that BMI is not a fixed and stationary process, but rather a methodical, dynamic, recurring and dependable capability that is systematic in nature. Furthermore, he states that entrepreneurs, organisations and managers must construct, shape, reinforce and periodically transform to obtain a maintainable competitive advantage in the end. This definition was generated with the Four Box Business Model framework in mind.

The above BMI definitions in this section were assessed and subjectively combined to generate a new BMI definition. This research study's first initial generated BMI definition is the following: A reconfiguration of activities within one or more of the building blocks of a business model which contains a methodical, dynamic, recurring and dependable capability, possessing enterprise innovation, that is systematic in nature and that entrepreneurs, organisations and managers must construct, shape, reinforce and periodically transform to obtain a maintainable competitive advantage within old or new product/service markets in which the firm competes.

The above generated BMI definition for this research study will be validated in Chapter 7.

2.3.2 Typology

According to Breiby & Wanberg (2011), a reconfiguration of activities within the current business model is considered BMI, and these changes usually take place within an intermediate planning

process and implementation stage. The result is a new and innovative business model. This process can be shown in Figure 2.10 below.

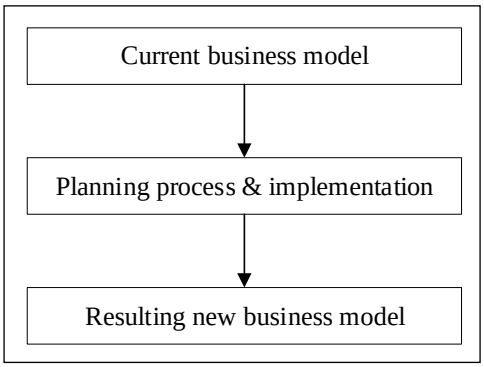


Figure 2.10: The process of how a business model is changed
(Source: Breiby & Wanberg, 2011)

Since the business model as a whole is a broad system full of actions, then BMI can be viewed as a model where these actions or activities are reconfigured (Breiby & Wanberg, 2011). These reconfiguration classifications can be seen below in Table 2.2.

Table 2.2: Activity reconfiguration summary

Classification	Type	What changes	Examples
Relinking – altering the linkages between units performing activities	Regoverning	The governance of transactions among units	An arms-length relation with a supplier becomes an alliance
	Resequencing	The order in which activities are performed	Design and procurement activities become mutually reciprocal instead of sequential
Repartioning – altering the boundaries of the focal firm by moving activities and the units that perform activities	Insourcing	Moving inside activities that were performed outside the focal firm	A manufacturer opens its own retail stores to supplement its dealers
	Outsourcing	Moving outside activities that were performed inside	A firm outsources its IT activities
Relocating – altering the (physical, cultural, and institutional) location between units performing activities	Off-shoring	Moving activities from a unit in the firm's home country to a foreign country	A bank moves back-office activity to a foreign subsidiary
	On-shoring	Moving activities from a foreign country unit into the home country of the firm	A call center is moved back to the original country
Reactivating – altering the set of activities performed by the firm	Augmenting	Adding a new activity to the firm	A free give-away newspaper hires people to hand out the paper at subway stops
	Removing	Removing an activity from the firm	An airline removes cooking hot meals from its service

(Source: Santos *et al.*, 2009)

Table 2.2 defines the innovation types with a focus on the activity that creates value and not the actual value itself.

Stampfl (2015) suggested that the types of BMI be classified according to trigger, degree of change and degree of novelty. This is illustrated below in Table 2.3.

Table 2.3: BMI types according to differentiation criteria

Criteria for differentiation	**BMI Types**
Trigger	1. BMI triggered by process or product innovations 2. Independent BMIs
Degree of Change	1. Reconfiguration of the current business model 2. Generation of a new business model
Degree of Novelty	1. The world has encountered the business model 2. The industry/market has not encountered the business model 3. The company has not encountered the business model

(Source: Stampfl, 2015)

For the purpose of this research study, the Degree of Change row in Table 2.3 will be briefly focussed on. Dodgson *et al.* (2014) termed the first degree of change as *business model reconfiguration* and the second as *business model design*. Business model design describes the entrepreneurial process of generating, implementing and authenticating a new business model for a focal firm. These two phenomena, business model design and reconfiguration, constitute part of BMI as illustrated in Figure 2.11 below.

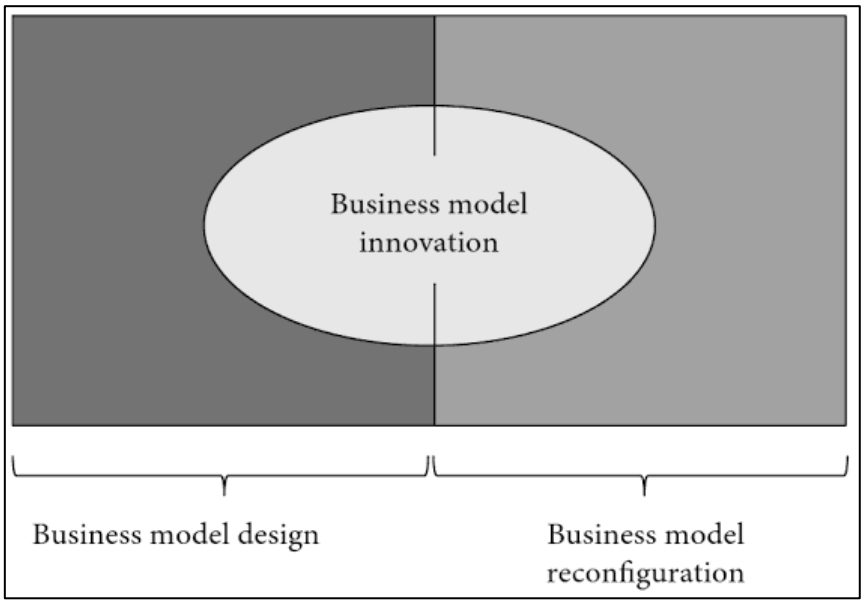


Figure 2.11: BMI can be divided into business model design or reconfiguration
(Source: Dodgson *et al*., 2014)

2.3.3 Process and approach

Section 2.3.3 describes six prominent BMI processes and approaches, including their stages and stage activities, which are suggested by different leading authors.

2.3.3.1 Five Stage BMI Process

Osterwalder & Pigneur (2010) stats that BMI is a disordered and unpredictable process, and that it requires the user to be able to handle ambiguity and uncertainty within the initial phases. This concept can be illustrated in Figure 2.12 at the top of the following page.

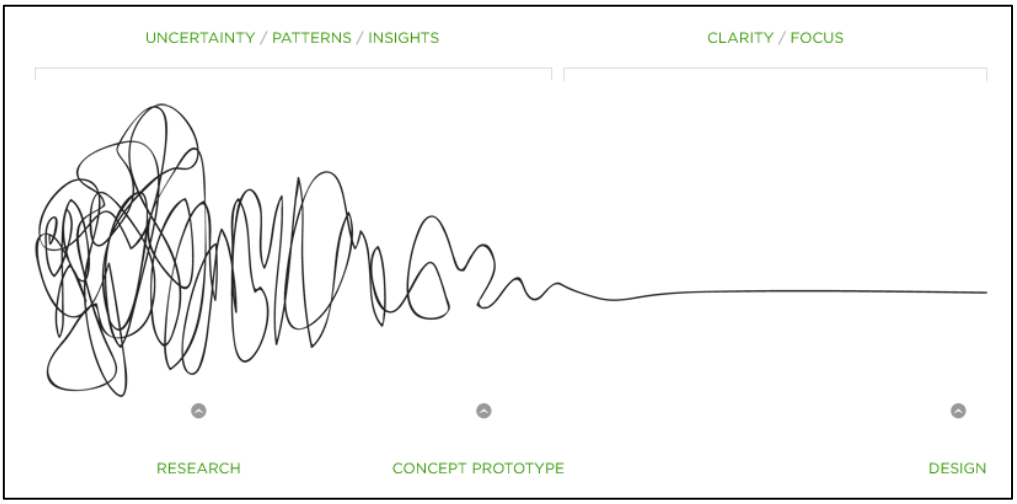


Figure 2.12: The transformation of uncertainty to clarity as the BMI process advances (Source: Osterwalder & Pigneur, 2010)

Osterwalder & Pigneur (2010) suggests a generic BMI process that consists of five linear stages: mobilise, understand, design, implement and manage. They state that these five stages, described below, very rarely progress in a linear manner. Furthermore, Osterwalder & Pigneur (2010) provide tools that they suggest should be used within each stage. The division and description of these tools can be seen in Section D.1 in Appendix D within Tables D1 and D2.

1. Mobilise: Mobilisation is the first phase, it concentrates on setting the base and preparing for a successful business model design process, discussing the motives and forming a common platform on which the business model must be designed. Core activities include stating the project objectives, planning the project and gathering a cross-functional team. The backing from the company executives, bestowed interests and linked multifaceted and functional groups need to be focused on during this first phase. Critical success factors include obtaining appropriate employees, experience and knowledge.

2. Understand: An excellent understanding of the context in which the business model must be developed is crucial. The understanding phase aims to investigate and assess elements of the organisation's current business model that are required for the business model design process. An extensive base of knowledge must be gained of the customers, being up to date with technological developments, understanding and drawing the business models of industry competitors and finally looking past the present market and customer boundaries. Core activities include scanning the environment, studying potential customers and collecting ideas and opinions. A critical success factor includes an in-depth understanding of the potential markets.

3. Design: This phase entails brainstorming to transform the information and ideas from phase two, into business model prototypes which can be assessed and verified in the future. Space must be provided for employees to be creative and to be able to explore their ideas through experimentation. Employees from different company departments that assist in the design phase, can stop barriers occurring in phase 4. Core activities include brainstorming, prototyping, testing and assessing.

4. Implementation: The aim of the implementation phase is to implement the selected business model prototype into the market environment. Phase 4 must focus on transforming the business model into a project with appropriate milestones, project funding, deciding whether

the business model operations will be dual or separate and finally communicating and integrating the business model through all the company levels. Core activities include communication, involvement and execution. Critical success factors include capability and willingness to refine the business model, as well as aligning the *old* business model with the *new* one.

5. Manage: The aim of phase five is to adjust and refine the business model accordingly to the reacting market environment. Core activities include scanning the external environment and constantly assessing the business model. Critical success factors include having a long-term outlook and being proactive.

2.3.3.2 Circular BMI Process

Lindgardt & Reeves (2011) used a business model design procedure as suggested by the Boston Consulting Group which is illustrated below in Figure 2.13.

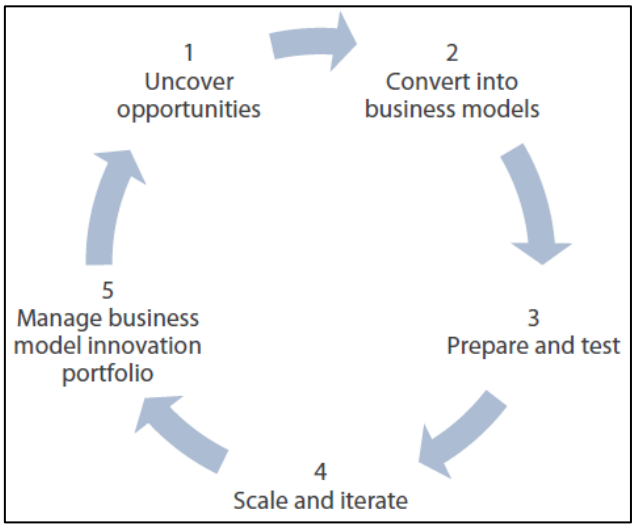


Figure 2.13: The Circular BMI Process
(Source: Lindgardt & Reeves, 2011)

Figure 2.13 above illustrates five separate stages in a continuous loop and can be viewed as a platform. Each stage is defined as follows (Lindgardt & Reeves, 2011):

1. The very first stage entails the discovery of business opportunities by diagnosing the limitations of the company's current business model. Other lenses are also used to identify opportunities, such as forcing successful business model patterns into industries and identifying undeserved customer needs.

2. The discovered opportunities are translated into appropriate business models. Suitable and rigorous evaluation criteria is used to assist the selection of the correct business model that meets the integrated holistic manner in how the business can deliver the Value Proposition in a profitable manner.

3. The third stage concentrates on the prioritisation and preparation for broader implementation. Factors such as cannibalisation is considered in terms of whether the new business model must be separately developed and implemented to the current business model. Decision-makers must be given the power to do the right things to make the new business model profitable. Finally, the new business model is tested within its environment.

4. This stage entails that the chosen business model is enlarged in scale, particularly, the management team, processes, procedures, performance metrics and communication plans. Additionally, the new business model requires an iterative process to refine it.

5. The final stage concentrates on handling the business model portfolio successfully in terms of various issues such as scheduling, threats and payback. Care must be taken to ensure that the business model is indeed suitable to the greater strategic surroundings of the business.

The key success factors for each stage is summarised below in Table 2.4:

Table 2.4: Success factors for each stage of the Circular BMI Process.

Stage	Success Factors
1. Uncover opportunities	Identify and disrupt customer compromises.
	Re-establish market boundaries.
	Contest industry assumptions.
2. Convert into business models	Step away from the current successful legacy business model and reengineer the entire structure.
	Do not protect the past.
	Following other successful business model trends are usually acceptable.
3. Prepare and Test	Robust leadership from the top of the organisation.
	Testing business models.
	Celebrate learning.
4. Scale and Iterate	Ensure independent decision-making
	Make use of the parent business models assets, but get rid of all types of 'tethers'.
5. Manage BMI portfolio	Obtain control over the BMI portfolio
	Develop BMI competence and a workable enterprise platform.

(Source: Lindgardt & Reeves, 2011)

The Circular BMI Process concentrates on the preparation and testing phase due to the unknown feasibility of the newly generated business model within the market segment. When problems do arise within the new business model, extensive management of these challenges must be executed when doing BMI (Breiby & Wanberg, 2011).

2.3.3.3 Geterud and Tegern

Geterud & Tegern (2012) proposed an extensive BMI process based on a case study of the worldwide component manufacturing company SKF. Their proposed process consists of four phases that are illustrated below in Figure 2.14.

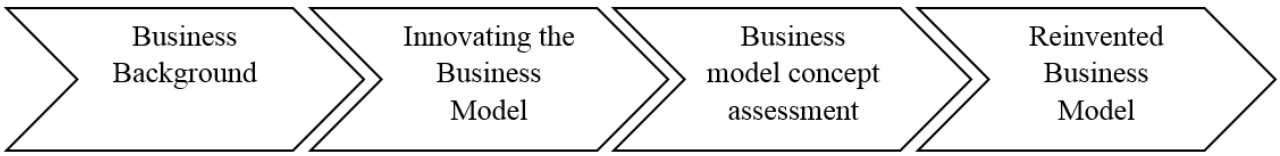


Figure 2.14: BMI Tool Framework
(Source: Geterud & Tegern, 2012)

Each of the four phases are broken up further into the following tool subsections, listed in ascending order seen in Table 2.5 on the following page. All the tools shown in Table 2.5 are explained in Section D.2 in Appendix D.

Table 2.5: Tools within each stage of the BMI Tool Framework

1) Business background	2) Innovating the business model	3) Concept assessment	4) Reinvented business model
Goal & scope	Current business model	Tagline – story	Customer segments
Product characteristics	Value proposition canvas	Value proposition	Value offer in life-cycle
Overview of applications	Six paths	Business model framework	Competitors' value offer
Competitive environment	Opportunity assessment 9 business model blocks	GAP-analysis	Positioning
Customer insight	Buyer utility map	Business impact and uncertainty	GAP-analysis and projects assessment
Trends and drivers	Innovation concepts assessment	Final concept assessment	Business case
-	-	-	Risk assessment
-	-	-	Implementation plan

(Source: Geterud & Tegern, 2012)

The four stages of the BMI Tool Framework are explained in the list below (Geterud & Tegern, 2012):

1. Business Background: This first stage sets the base for innovation to take place. Depending on how comprehensive the current business model's information system is, the Business Background Stage aims to act as a research phase by obtaining additional current information and analysis.

2. Innovating the Business Model: The second stage was designed to encourage the generation and selection of new innovative ideas.

3. Concept Assessment: The goal of the concept assessment stage is to broaden and assess the generated business model concepts in terms of their returns, implementation barriers and commercialisation doubt. This is done to enable a choice which must be made as to which concept to pursue in the fourth and last phase.

4. Reinvented business model: This final phase entails positionality, assessment of competitors, the discovery and hierarchy of market segments, risk assessment, time frames, projects costs and an implementation plan. All these mentioned components are vital when it comes to decision-making regarding investments. This final phase aims to bridge the gap between having the new business model as a project, and implementing the model itself.

2.3.3.4 Repeatable BMI Process

According to Johnson (2010b), BMI should not be a fluke and rely on intuition, but rather be a process that is iterative, systematic and structured in nature to ensure repeatability and optimisation. Johnson's (2010b) Repeatable BMI process, which is used to capture a white space, is illustrated in Figure 2.15 at the top of the following page.

Centric to repeatable BMI process, is his four-box business model framework, which is used to create assumptions and questions which can then be arranged and classified in a structured manner. The task at hand is to generate a completely new business model from scratch which is dissimilar to the original model (Johnson, 2010b).

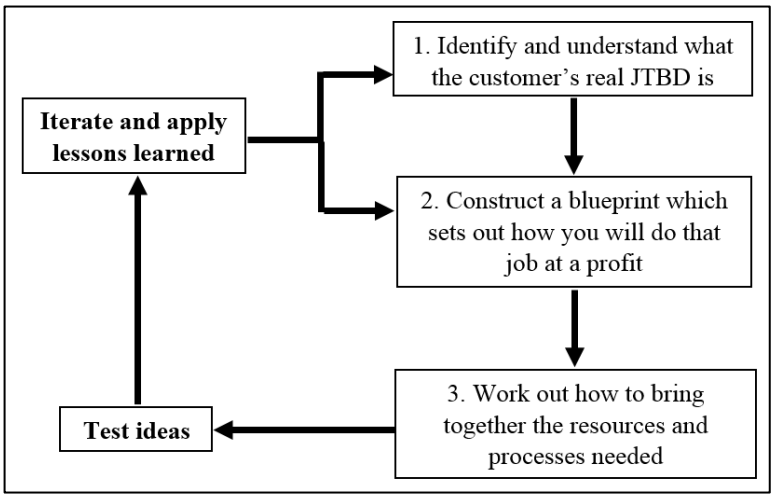


Figure 2.15: BMI process used to capture a white space
(Source: BusinessNews Publishing, 2014)

To achieve true transformational corporate growth, jobs must be identified within the relevant market that are not filled, and then a profitable venture must be devised to fill these jobs. It comes down to viewing the market from a new perspective, followed by the utilisation of the components found within the four-box model framework to achieve success (Johnson, 2010b).

Identify and understand what the customer's real JTBD is
The first step of the white space BMI process requires a different approach, one that is job-based, instead of the conventional and normal needs-based approach. The question that should be asked is "what job is the customer trying to get done?" instead of "what does the customer need?" These jobs can be financial, emotional or social in nature (Johnson, 2010b).

Construct a blueprint which sets out how you will do that job at a profit
Once the first step is complete, a business model needs to be designed describing how it will convey that which is required. In terms of the Four Box Business Model, Johnson (2010b) describes that the following components be designed in the following sequence:

1. Create a new CVP.
2. Design the Profit Formula.
3. Identify the Key Resources and Key Activities.

In terms of the CVP, an offering provision tool must be designed, which satisfies the job more superiorly than all other existing alternatives at the most acceptable cheapest price possible (Johnson, 2010b). Johnson (2010b) provides the list of questions below that must considered during this step:

- Must the identified JTBD be satisfied with a service, product or a certain mixture of both?
- Will the offering be transparent and simple or be intricate and wide-ranging?
- How in depth will the customer support be?
- What will the payment regime be, fixed or variable?
- Will revenue be collected in instalments or in one payment?
- Will the company deliver the offering, hire another company to deliver it, or must the customer collect the offering?

Once these questions have been answered, it will lead to the generation of a new CVP. The subsequent step is to design the steps required to convey the CVP at a profit. The development of the Profit Formula is required at this point. Johnson (2010b) suggests the following questions below that must be considered during the development of the Profit Formula:

- What is the average profit amount over a period of three to five years that is required to make the opportunity at hand valuable?
- Taking the above question into account, what is the amount of income required from sales?
- What will the average cost per unit be considering the entire cost structure?
- What will be the company's final target unit margin as well as its resource velocity?

By answering the above questions, it is possible to generate an expected income statement by working backwards and considering the made assumptions. By going through this process, the resources and processes that the company requires to convey the Value Proposition, is also recognised. This identification of resources and processes is helpful due to the following two reasons below (Johnson, 2010b):

1. Resources and processes are recognised that will be common to the present core operations of the company which will result in reduced start-up costs.
2. Confliction points will be identified with employees utilising central assets which could hamper the new business model's success.

Work out how to bring together the resources and processes needed

An additional barrier exists to transform the theoretical business model to the existing and practicable outside world. Johnson (2010b) suggests that a hypothesis must be generated, tested in the practicable environment and then the lessons learnt need to be applied to achieve better future success. Essentially, in Johnson's model, iteration is the key point to achieving development as was illustrated in Figure 2.15.

Once the required Key Processes and Key Resources are initially identified, tests will have to be carried out to determine if those identified processes and resources are indeed correct. Additionally, the implementation process reveals whether the integration of all the different components into a business model is indeed possible or not, within the realistic realms of the outside world. According to Johnson (2010b), implementation can be broken into the following three phases: 1) Incubation - Establish profitability, 2) Acceleration - Start to reap desired revenues, 3) Transition - Generate real large-scale revenues.

The incubation phase entails the establishment of profitability as well as anchoring the best metrics to gauge the company's success (Johnson, 2010b). The key assumptions of the new business model are identified and taught accordingly. This is done so that the thought process can be authenticated as well as to recognise the unknown areas.

The testing and learning process enables the company to find out whether their assumptions are correct, as well as allowing them to test which market sector is most suitable. This area of the market that is utilised for testing serves as a type of market laboratory, which often contains a small customer segment and geographic region which is low cost in nature (Johnson, 2010b). Finally, the incubation phase also enables the company to recognise clashes between business model elements.

Once the new business model has showed that it is certainly feasible, the company must start to structure the recurring processes to ensure profitability. During the acceleration stage, the company does the following (Johnson, 2010b): 1) Hone company processes followed by normalisation, 2) Launch and form the rules of the business and 3) Define the chosen metrics that will gauge company success. This phase entails the transferral from foothold markets, to larger markets. It is important to keep in mind that the company must keep on executing experimentation and fine-tuning processes throughout the acceleration phase while additionally gauging how well the different business model elements are operating together (Johnson, 2010b).

The final phase, transition, entails determining whether the newly generated business model must operate as a separate entity or be established as the core of the present organisation. Johnson (2010b) gives the following important conditions, seen in Table 2.6 below, when a business model must be kept as a separate unit or be integrated into the present company core.

Table 2.6: Business model integration and separation conditions

Keep Business Model Separate	**Integrate business model back into the parent company**
A different value proposition and brand is required.	The profit formulas of both business models are very similar.
The new business model is disruptive to the present core of the company.	The new business model has a significantly greater output margin.
The new business model requires the use of a different set of company metrics and rules.	The brand is enriched and heightened by the new business model.
	The new business model has a good possibility to reinvigorate the core of the company.

(Source: Johnson, 2010b)

According to Johnson (2010b), it is important that the company is open and enthusiastic with regards to accepting change. This creates a much easier environment through which the new business model can be successfully integrated and broadened throughout the existing company core. Johnson goes on to state that to capture a white space opportunity, the company must clearly specify the new rules and metrics that will be used. This is done so that the employees are free from the old rules and comply with the new set of rules. The top executives of the company must get involved with the new rule and metric transformation, since the order to approve notions can only be approved and set into motion by them.

2.3.3.5 4I-Framework

Frankenberger *et al.* (2013) aimed to increase the understanding of the dynamics of BMI through the investigation of the structure and challenges of BMI processes. They generated a generic framework, and named it the 4I-Framework to describe the stages of BMI to assist companies to innovate their current business models. The 4I-Framework, which entails a design and realisation phase, consists four BMI stages: 1) Initiation, 2) Ideation, 3) Integration and 4) Implementation. This framework is illustrated at the top of the following page in Figure 2.16 after which each stage is then described.

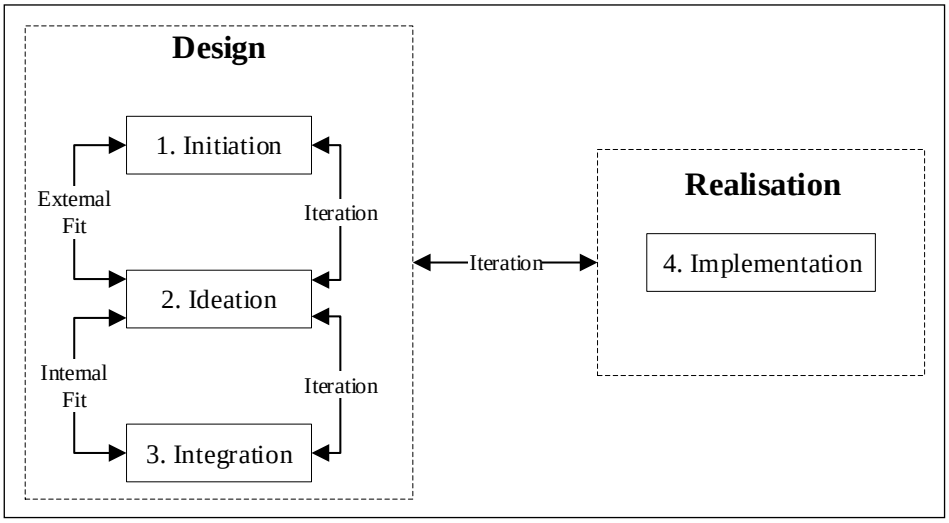


Figure 2.16: 4I-BMI-Framework
(Source: Frankenberger *et al.*, 2013)

Initiation
The initiation stage entails the observing and understanding of the surrounding environment of the firm. This environment is comprised of various entities such as competitors, customers and other immediate operational influences. Frankenberger *et al.* (2013) emphasise the fact that these influential entities must be understood, especially their needs. They go on to state that the identification of technological changes is important because it can trigger required business model changes. A participant within their validation supported this by stating: "Today changes in the environment or in technology happen so rapidly that it is really difficult to keep up with them, but this is a key precondition for successful business model innovations and a key success factor for our firm."

Ideation
The ideation stage aims to generate ideas for new potential business models. More specifically, it converts opportunities that were identified in the previous stage into realisable ideas. Frankenberger *et al.* (2013) discovered through their validation process the following three main challenges that must be addressed:

1. Overcome current business logic: Competitor analyses remains important, however industry laws should be challenged to initiate out of the box thinking.
2. Business model thinking difficulty: Instead of constantly focusing on new product developments, the firm must adopt a thinking attitude structured around business models.
3. No business model idea development tools: A clear lack of tools exist as to how to go about developing business model ideas.

Integration
The integration stage is the third stage of the 4I-Framework and concentrates on developing new, whole and suitable business models from the ideas identified within the ideation stage. Frankenberger *et al.* (2013) state that integration of the various business model components and the management of partners, are two important aspects to consider within this stage.

Implementation
Implementation is the final stage and takes place once the business model is completely designed. This stage typically involves big investments and must take place for the business model to be tested.

The two main challenges encountered within this stage that Frankenberger *et al.* (2013) discovered through their research is the following:

1. Overcoming internal resistance: Employees are resistant to change either due to being afraid or not seeing a viable reason for it due to the current business model still operating soundly. Therefore, the management of organisational change is an important aspect to consider.

2. Manage the chosen implementation approach: Most firms adopt a cautious implementation approach by using test pilots and executing small market experiments. The core challenge that must be addressed is to ensure that lessons are learnt from these actions to refine and adjust the business model.

4I-Framework dynamics

Frankenberger *et al.* (2013) state that although the 4I-Framework provides a set linear structure for managers to follow, the actual process is more chaotic and complex than presented and involves the overlapping of stages. Therefore, an acceptable paradox can exist between structure and iteration.

Three feedback loops exist within the 4I-Framework. The external fit describes the alterations within the ecosystem, which calls for the ideation stage to be adapted. The internal fit involves the internal resources, which can influence the desired innovation in the third stage. The third and final feedback loop entails the lessons that are learnt in the implementation stage, which can influence the entire business model through required changes that must take place. Finally, Frankenberger *et al.* (2013) made use of the triangular business model. The ideation stage governs the *who* and/or *what* components, while the *why* and *how* components are determined during the integration stage.

2.3.3.6 Cambridge BMI Process (CBMIP)

The CBMIP, designed by Geissdoerfer *et al.* (2017), consists of three high-level phases and eight key processes. According to Geissdoerfer *et al.* (2017), the CBMIP was designed from an extensive systematic literature review stemming from prominent authors, after which it was validated through an interview with experts followed by a case study using triangulation. It is prescriptive and descriptive in nature by illustrating how BMI occurs in practice and by providing how BMI should be executed within a firm. The entire process is cyclical or repetitive in nature, meaning that once the process has been carried through, most firms will return to various points in reaction to changes within the external environment. The CBMIP can be seen in Figure 2.17 on the following page. The eight key processes of the CBMIP are listed below and spans across to page 42 (Geissdoerfer *et al.*, 2017):

1. Ideation: The goal of the BMI project is stated, and its stakeholders recognised. Additionally, initial ideas surrounding the firm's current Value Proposition and other concepts are generated.

2. Concept Design: A quick draft version of the business model components are created and recorded.

3. Virtual Prototyping: Numerous prototypes are created and reviewed for adjustment and communication purposes of the business model concept. Benchmarking of solutions against other entities are also performed.

4. Experimenting: Core assumptions of the concept are tested using simulations and field experiments.

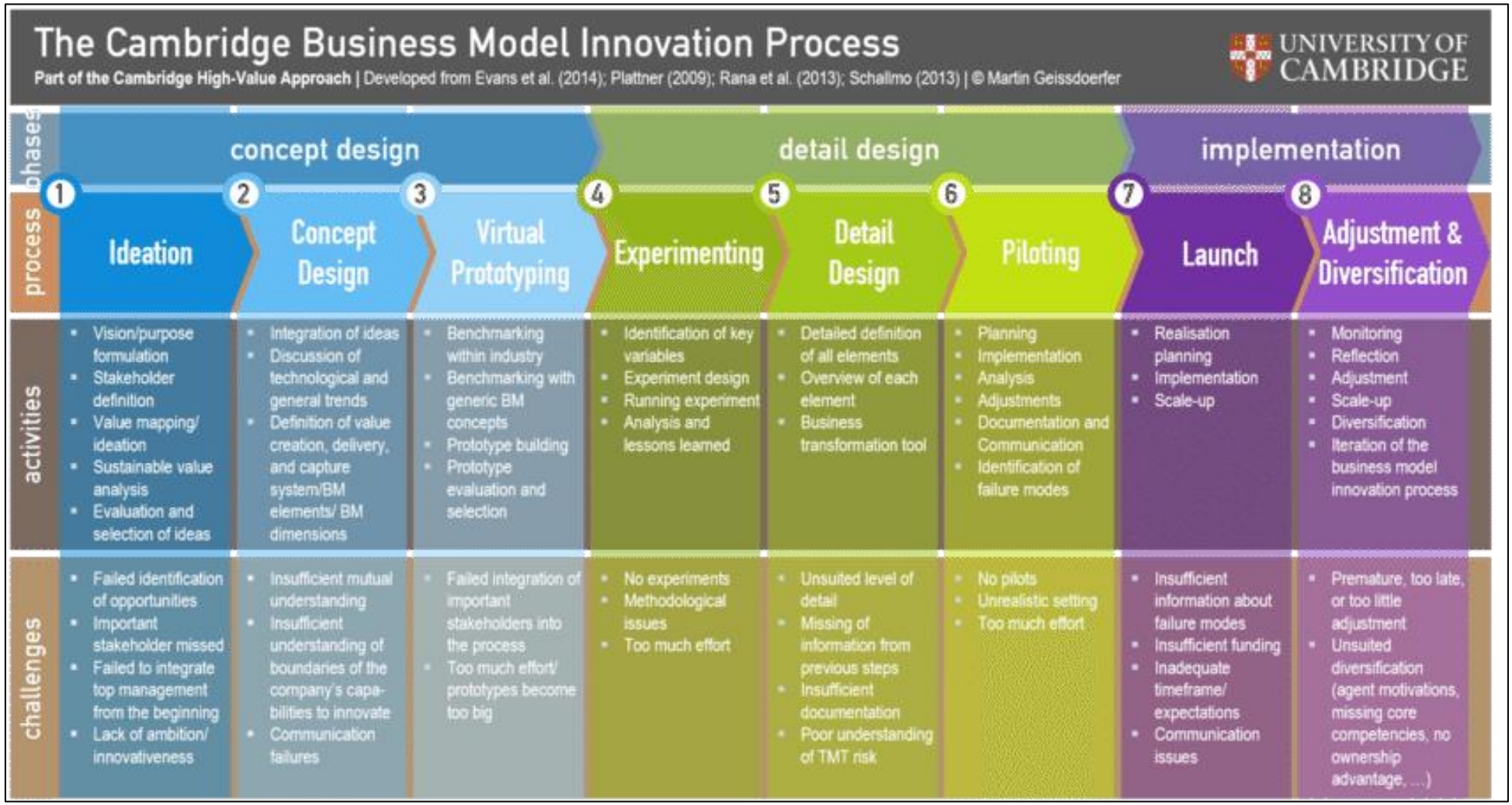


Figure 2.17: Cambridge BMI Process
(Source: Geissdoerfer *et al.*, 2017)

5. Detail Design: A detailed and comprehensive analysis of all the business model components and the relationships that exist between them are executed.

6. Piloting: The whole business model concept is tested in a limited manner within a small section of the market.

7. Launch: The business model is employed across all firm levels and across the entire target market.

8. Adjustment and diversification: Revisions to the business model are made in terms of the original plans, outlooks and strategic fit. Taking this revision into account, appropriate refinements are made. It is possible that entire process is to be repeated if deemed necessary.

2.3.3.7 Process and approach discussion

Section 2.3.3 illustrated and described six prominent BMI frameworks and their related stages and stage activities up to this point. It can be seen from all six BMI frameworks, that they are designed on a high and general level containing few steps, linear or simplistic systematic flow and no decision-making structure or set of concrete design guidelines. Finally, it is only the Five Stage BMI Process and the BMI Tool Framework that contain a set of comprehensive and practical tools for each stage or phase.

Johnson's (2010b) Repeatable BMI Process, which is additionally the only framework to address the concept of a white space opportunity, falls into the above-mentioned limitations. Moreover, it differs from the other BMI approaches in that it focusses on designing a completely new and separate business model, in line with a white space *market* opportunity, from scratch. The other BMI frameworks focuses on innovating their own business model by identifying *ideas* (or sometimes also termed as opportunities) surrounding their current business model, to end up with a new and final reinvented business model.

Section 2.3.4 describes the different BMI enablers.

2.3.4 BMI enablers

Storbaka (2010) identified various generic BMI enablers suitable for business and motivational alterations. These enablers include organisational culture, as well as management involvement and support.

2.3.4.1 Organisational culture

Santos *et al.* (2009) designed a BMI corporation which focuses on generating the opportunity for BMI to occur from an organisation that possess various business units. Santos *et al.* (2009) state that for BMI to occur, an unstructured "creative space" must be created within the business to enable managers to communicate with each other in an energised manner. The core advantage is the links that exist between the various business entities and those that lead to the central company. A potentially big BMI knowledge gap can form between the top company managers and the business unit managers, with regards to capturing opportunities. Once this knowledge opening is filled through a sharing of information, opportunities will be more readily available for BMI to occur (Santos *et al.*, 2009).

The concept of autonomy is emphasised by Comes & Berniker (2008) to refrain the new business model from having preconceived structures of the parent company. To achieve this, the team involved with the BMI process must be separated from the parent company. The company employees that need to be separated can see this detachment as a reward or punishment, depending on the culture of the business.

Doz & Kosonen (2010) suggest that resources should be detached from company possession, which will generate a business in which cooperation and common accountability is made possible regarding company decision-making, thereby enabling new ideas and reduced barriers to change. Essentially a business environment is generated, which provides the possibility for the generation of new ideas.

2.3.4.2 Management involvement and support

The support of management is a key ingredient whenever corporate change occurs. Chesbrough (2007) suggests that a driven top manager must be given the responsibility to control the BMI experiments with its associated resources. This manager must then work together with various company divisions, after which the manager decides which projects to cease and which to proceed with, based on their potential to generate future profits.

According to Santos *et al.* (2009), top company managers must alter their behaviour additionally to altering the assembly of the company itself. For ideas to be driven forward and companies to generate BMI, the corporate environment must be inviting, enthusiastic and open for initiatives and risks to take place. The top managers must therefore participate in the BMI discussions, providing their knowledge and input to the other employees to generate opportunities for learning.

Comes & Berniker (2008) discussed the importance of the top management and executives to support and frequently get involved with the decisions regarding the strategy of the BMI team. The top management has the most amount of knowledge, experience and understanding, which is why their participation is important.

2.3.5 BMI barriers and solutions

Section 2.3.5 briefly describes the barriers and solutions associated with BMI.

2.3.5.1 BMI barriers

It has been shown that experimentation with business models can yield positive results for a company, yet there are very few companies that do this (Chesbrough, 2010). Experimentations are often put aside by company managers since new business models could potentially clash with the company's current business model (Amit & Zott, 2001).

Additionally, during the initial early stages of a new implemented business model it is often the case that the margins, growth and value to company is lower than the acceptable standards of the company (Comes & Berniker, 2008). The barriers described thus far are built upon the assumption that there is a known requirement for new business model. Yet Chesbrough (2010) states that a barrier exists within the recognition for the requirement of change needed.

According to Storbaka (2010), the BMI barriers that are explicit in nature and currently found within academic literature are: 1) Organisational structure, 2) Organisational culture and 3) Financial metrics and incentives. These barriers are summarised in Table 2.7 at the top of the following page.

Table 2.7: BMI barriers

Theme	Barrier description	Source
Organisational Structure	A separate entity is required when a new business must be introduced, however this entity cannot be completely detached due to financing and budgeting systems present in the parent enterprise	Comes & Berniker, (2008)
	Internal systems have no incentive to embrace a discovery-driven approach	McGrath, (2010)
	Managers are rotated too often leading to them developing the present business within their time, rather than executing a BMI process	Chesbrough, (2007)
	Corporation centre serves as a barrier of BMI, by altering the scope of the corporation, impacting the strategic operations of other units and changing the risk exposure of the organisation	Santos *et al.* (2009)
Organisational Culture	New business groups are considered risky vs. new business groups are considered as superior	Comes & Berniker, (2008)
	The current managers and executives have reached their positions using the current model – familiar and reassuring: no evident need to change	Chesbrough, (2007)
	Current business and new business groups are valued unequally	Comes & Berniker, (2008)
Financial Metrics and Incentives	New business model is measured on the same metrics as the old one	Comes & Berniker, (2008)
	Sales channel opposition; since the best customers aren't served by the new business model they can't see the benefit of the new model	Comes & Berniker, (2008)

(Source: Adapted from Storbaka (2010))

2.3.5.2 Solutions to BMI barriers

Currently, there has not been extensive research done on the solutions to BMI barriers. Most of the present literature focuses on the identification of the barriers and not the discussion to overcoming them or designing an extensive solution blueprint.

Chesbrough (2010) discusses the importance of the Business Model Canvas framework that was designed by Osterwalder and Pigneur (2010). Chesbrough suggests that the multicomponent framework assists in visualising and increasing the tangibility of the business model which enables experimentation. Storbacka (2010) on the other hand stresses the use of concrete practical tools for the generation of BMI. He goes on to state that these tools are however not enough, but that the top managers require structures and procedures that make innovative experimentation possible.

2.3.6 Implementation problems

The moment the BMI process is executed, issues and problems are bound to arise. This section discusses various challenges that are often faced.

When moving from an old business model to a new one, several areas of conflict will arise, which is often the case in dual business models (Breiby & Wanberg, 2011). Porter (1998) states that businesses that try to position themselves between various strategies often get caught somewhere in the middle, which results in a decreased performance output when compared to the norm.

Alternatively, disruptive innovation actions can be advanced within a different entity and establishment to minimise possible clashes. This should be done because the established rules, systems, boundaries and culture will stop the new innovative business model from reaching its full potential (Christensen & Raynor, 2013).

2.3.6.1 Separation and Integration Strategies

Markide (2008) argues that some companies have succeeded and failed when choosing either strategy, namely the separation or integration strategy. Therefore, the result has been somewhat of a mixed conclusion for both strategies. He concludes by stating that companies should not be choosing the one strategy above the other, but should rather know when to use the separation strategy and when to use the integration strategy. These different strategies are illustrated below in Figure 2.18.

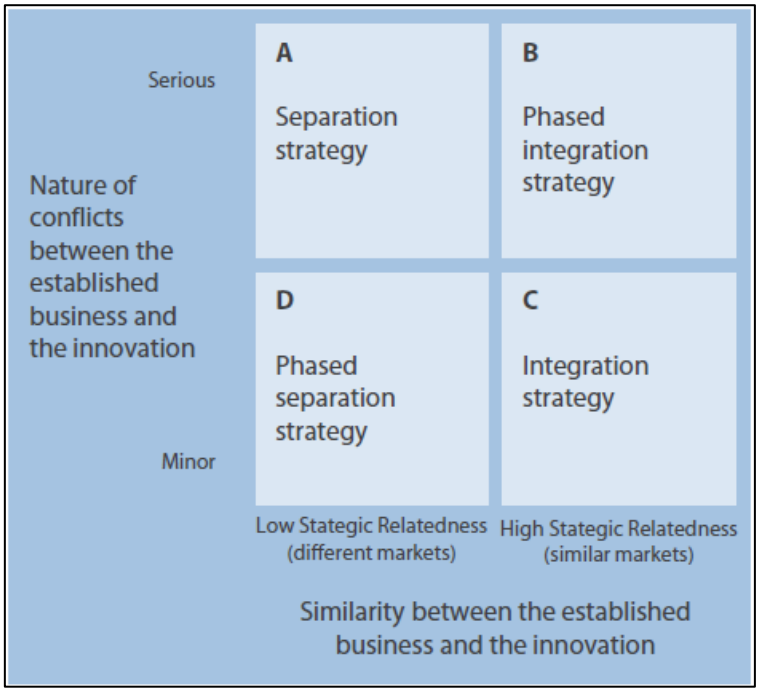


Figure 2.18: Matrix containing the different separation and integration strategies (Source: Markide, 2008)

The different strategies will be discussed below as follows (Breiby & Wanberg, 2011):

- The separation strategy entails starting the relevant business model without any future procedures in place to integrate it into the old model. It is started as a separate body.
- The phased integration strategy consists of starting the new business model as a separate body with future procedures in place to integrate it into the old model. Therefore, it is slightly like the separation strategy.
- The integration strategy develops the new business model within the company and parallel to the original model. It will not be spun out at all.
- The phased separation strategy entails developing the new business within the company and will eventually be spun out after a period.

Figure 2.18 highlights the decisions in terms of how new business models should be transformed, as well as how it should be managed (Breiby & Wanberg, 2011).

2.3.6.2 Sustainable competitive advantage

On the other hand, Teece (2010) suggests to obtain a sustainable competitive advantage regarding BMI within an industry, the company's business model should be different from the industry norm and tough to replicate. In order protect a new business model's competitive advantage, its strategies must be united with business model analysis. To stop business model replication there are three main elements (Teece, 2010):

1. When a business model is implemented, the model should entail some capabilities which could stop another company from copying that model.
2. The ability to hide the true drivers of client acceptability can make it difficult for other companies to understand and replicate the applied business model.
3. Incumbents' reluctance to cannibalise existing sales and profits. This can give a first mover advantage, but it will not prevent new entrants from entering as these new actors are not bound by the same constraints.

Competitive advantage is obtained through strategy, by defending a specific position or taking advantage of a treasured or distinctive group of resources (Casadesus-Masanell & Ricart, 2011; Oliver, 1997; Bharadwaj, 1993). Casadesus-Masanell & Ricart, (2011) go on to state that these positions and resources are generated by virtuous cycles and therefore business models must be designed in such a way that these cycles are to be created.

2.3.7 When is BMI required?

Present business environments are becoming ever more complex and dynamic (Neu & Brown, 2008). According to Giesen *et al.* (2010) there are very little companies that know when a change to their business model is required. It is therefore important for every company to constantly assess when the correct time is to alter their business model when trying to capture new opportunities, or reacting to competitive forces.

Table 2.8 at the top of the following page sets out various questions to assist companies in understanding the conditions when BMI could be necessary. If a company answers yes to any of the questions posed in Table 2.8, they should immediately consider going through a BMI process.

Osterwalder & Pigneur (2010) also provide the following list for when BMI is required:

- To fulfil an existing yet unanswered market need.
- To introduce new technologies, goods or services to a market.
- To improve, disrupt or alter a settled market with an improved business model.
- An emergency exists with the current business model.
- To advance, refine or guard the current business model against an altering environment.
- To plan by investigating and assessing new business models that could possess the potential to substitute existing ones.

Table 2.8: External and internal factors requiring BMI

External Factors & Industry Transformation	
Value Chain	Have there been shifts in your value chain such as the introduction of "direct" models or value migration along the value chain?
New entrants	Are new market entrants introducing models that would disrupt your industry?
Competitors	Do you see competitors introducing innovative propositions or models impacting your business?
Customer preferences	Are customer preferences for goods, services or channels changing?
Customer segments	Do you see new customer segments emerging that would require delivery of different products, services or delivery through new models?
Technology	Are there disruptive new technologies emerging?
Regulatory/legal	Has there been significant change to your regulatory environment, either by industry or geography, which impacts your current business model?
Environment	Are there social and environmental sustainability factors that impact your current model?
Internal Factors	
Product/service innovation	Are you taking a new technology, product or service to market that requires a new set of skills, capabilities and processes which leads to a new value proposition and pricing strategy?
Performance	Are you in a period of declining or negative growth relative to your industry?
Resource availability	Are you delivering economic returns that provide the financial resources to make bold moves? Can you leverage the right skills and capabilities?

(Source: Giesen *et al.*, 2010)

2.3.8 BMI and firm size

BMI is not limited to any specific company size, since every single organisation, irrelevant of how big it is, operates according to a specific business model. Although, incumbent companies find BMI more challenging. This is because they must contemplate how new opportunities relate to their current operating business model. Companies that are in the start-up phase do not face this problem, which is a reason why small initial firms are often the source for the most BMI. Large incumbent companies can however utilise their resources to generate new business models, as long the business model design process is separate from the core of the company.

2.4 White spaces

Section 2.4 introduces the concept of a white space opportunity, which is one of the core research themes for this dissertation. This section gives a background on white spaces followed by its definition. The different types of white space opportunities are then described, after which the white space conditions of when a new business model is required is then discussed. Furthermore, the concept of white space mapping is described, followed by a brief elaboration on white space and leadership. Finally, Mark W. Johnson is the founder and prominent author of the white space concept and therefore features prominently as an author in this section.

2.4.1 Background

Many businesses have skipped, struggled and failed to take advantage of specific market opportunities that can offer exceptional growth. It is important to understand how businesses operate in a general and basic way when pursuing growth. Essentially, businesses exist to provide and deliver a Value Proposition, for which they receive turnover for. Every operating company has a set of activities it executes to serve a customer segment and in return make a profit (Johnson, 2010b).

In the early stages of a company lifecycle, this operating space may be within an area where there may not be specific anchored boundaries. The more the company ages, the more clearly defined these boundaries become. The matured area is known as the *core* operating space of a company and this where its efforts and capabilities are concentrated (Johnson, 2010b).

According to Johnson (2010b), as time passes companies become effective at developing their core. They effectively lock onto more resources, enhance present products, generate new products, widen their markets and decrease their losses by refining their processes – just to obtain the greatest amount of value from its activities within the core.

Additionally, companies improve their rules, governing actions, generate structures for discipline and implement hierarchal levels. Therefore, the company is essentially functioning in line with a business model, which describes how a company conveys its value proposition to its customer segments for a specific profit. Along the company's maturity, comes the evolution of this model until it is impeccably suited in relation to the company's needs (Johnson, 2010b).

The question however is (Johnson, 2010b): what does the company do when it is presented with an opportunity that lies outside its core which requires the service of an entirely new customer segment, or a present customer segment that is served in a profoundly new manner?

2.4.2 Definition

Often business opportunities become known to serve a completely new customer or market sector in original ways that are not defined within a company's current core structure. These opportunities, although it might not seem so at first, can slot into a company's current business model smoothly and are therefore called *adjacencies* (Johnson, 2010b).

However, some of these opportunities will require a company to function in a different manner. The company will have to come up with a new plan to obtain revenue, resources, expertise and management of activities. If a case exists that a company in question must deliver new and original value to a market due to one of these opportunities becoming known, which requires the company to fundamentally change its core structure, the opportunity lies within the businesses white space (Johnson, 2010b). This white space classification is illustrated at the top of the following page in Figure 2.19.

The term *white space* is defined by Johnson (2010b) as "the range of potential activities not defined or addressed by the company's current business model, that is, the opportunities outside its core and beyond its adjacencies that require a different business model to exploit". It is where goods, and even services, are not presently centred on the current understanding of the company's values, definition or present capabilities (Johnson, 2010a).

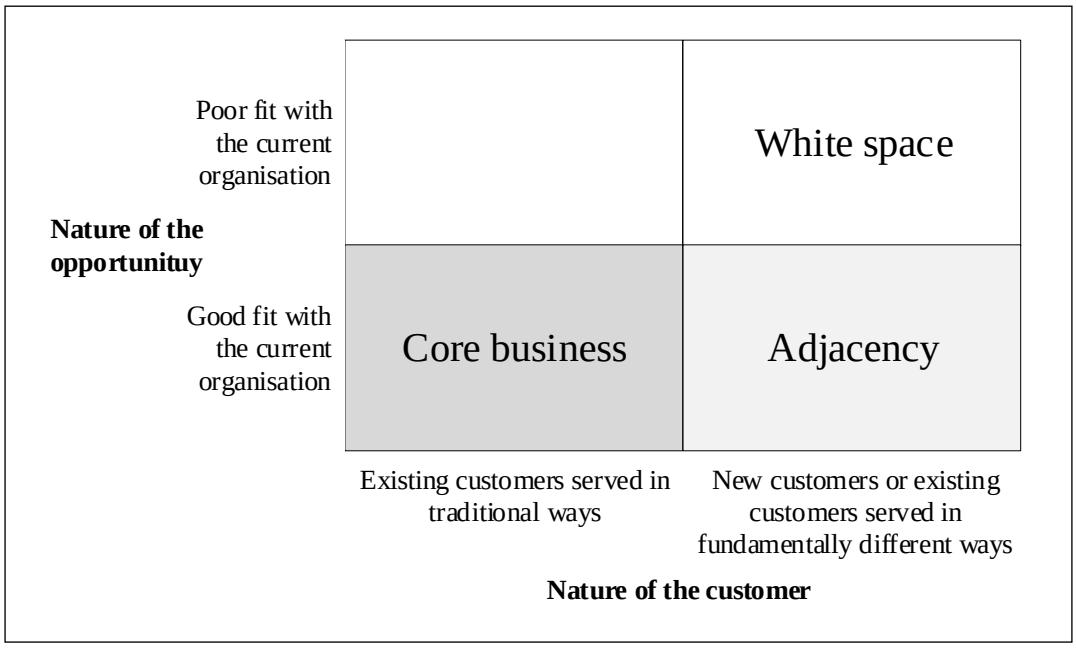


Figure 2.19: Block diagram showing the different opportunities in relation to the nature of the customer and the fit to the organisation
(Source: Johnson, 2010b)

This kind of approach is essential during strategy formulation for two main reasons. The first reason is that a lot of companies have not understood that their current business model is not sufficient to capture a white space opportunity, which leads to these companies failing to enter that space. It is important to note that these companies failed to understand that a different business model could have led to a successful capture. Therefore, the companies have unnecessarily established constricting boundaries for themselves, by reverting to their old strategies which can only be performed by their present business model (Johnson, 2010a).

Secondly, it could be true that the white space for one company is another company's core business, which results in a riskier competitive environment (Johnson, 2010a). On the other hand, another firm's white space may be perfectly suited for a different company's current business model.

It must be noted that a white space defines undertakings that does not normally lie in the day-to-day company workings. It brings a completely new set of problems to the company where their expertise within that area is very low and their assumptions are high, exactly the opposite to the environment within the core of the business (Johnson, 2010b).

The opportunity to enter a white space can be a great business venture for any company. It could bring exciting and fast growth, which so many CEO's often look for (Johnson, 2010b). It is understandable however that companies can be hesitant to do so, due to the unknown and foreign territory they would have to enter coupled with the associated risk in doing so. However, if a company decides to walk away from a white space opportunity it essentially leaves the company with only its core and adjacent opportunities to fund its current and future growth.

In summary, white space opportunities present unfamiliar territory that businesses either fail to identify, are too hesitant to capture, or fail in the capturing process due to them not understanding their own old and stagnant business model, the BMI and generation process, or the coupled risks associated with such a venture. White space opportunities can bring about exceptional transformational business growth and unlock new revenue streams. These white space opportunities must be viewed as an amazing opportunity for business expansion and be captured rather than be an unknown and misunderstood entity that is avoided.

2.4.3 Types of white space opportunities

According to Johnson (2010b), three kinds of market circumstances exist which will require a venture into a company's white space with the assistance of BMI. These circumstances are described in detail in Section 2.4.3.1 to 2.4.3.3.

2.4.3.1 Internal white spaces

Internal white spaces entail satisfying the unfulfilled JTBD to a company's present customers. Corporate altering growth can be achieved by a company by conveying a new value proposition that slots into a suitable business model to confront the JTBD.

Internal white space opportunities are closely linked to foreseeable transferrals in the basis of competition within an industry - the facets of an offering for which a superior price will be paid for by a client. These transferrals in the basis of competition can be represented by Figure 2.20 below.

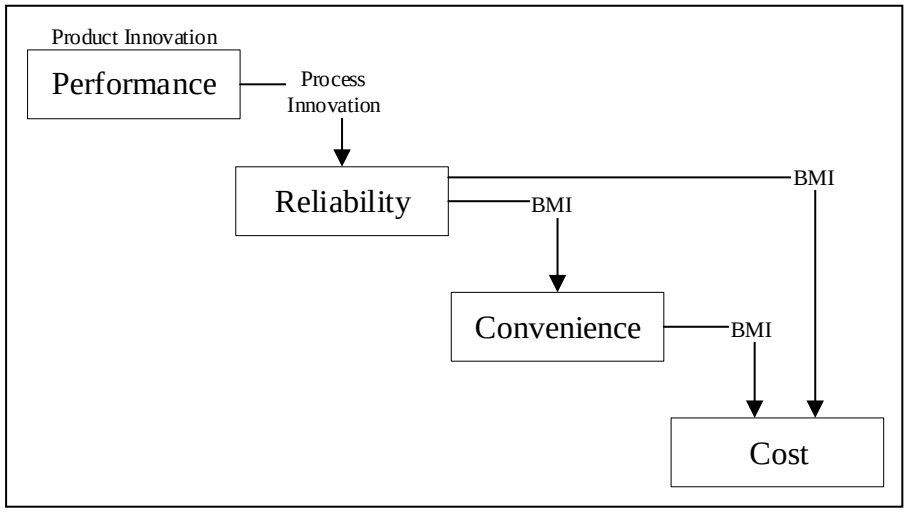


Figure 2.20: Transferal in the basis of competition
(Source: Johnson, 2010b)

In the initial market stages, customers will be prepared to pay a superior price for product and service performance and functionality. If all the market offerings are at the same level, customers will then pay a superior price for increased reliability and quality. To achieve this, companies must execute process innovation. Once all the market offerings have reached the same reliable level, customers will then be prepared to pay a superior price for fast, convenient and custom offerings. However, BMI is required for this to happen. The following and final basis competition transferral is to cost, which is what companies solely compete on at this stage of the market maturity. Additionally, the market is completely commoditised at this point. Again, BMI is required for increased efficiency which will lead to decreased prices (Johnson, 2010b).

The transferrals are not linear every time; the basis transferal can move from reliability, to cost directly. This nonlinear transferral arises in enterprise-to-enterprise organisations as well as market sectors that are compelled by technological advances (Johnson, 2010b).

It must be noted that the JTBD and value proposition changes primarily after every transferral. Companies must stay vigilant to these transferrals and generate new methods to address them accordingly. The transferrals become more profound as the market matures, which then requires a new business model to capture the internal white spaces to attain corporate growth (Johnson, 2010b).

Many of the existing markets that are already developed, are anchored to a convenience or commoditisation era wherein low cost are the ultimate regimes (Johnson, 2010b). Product innovations within today's environment, which concentrates solely on functionality and quality, are not as sustainable as they always were. The demand for ever more convenient products are on the rise (Seiders *et al*., 2000). Convenience serves as an ever more common platform for competition, which results in markets becoming more quickly commoditised. Companies must view this era of convenience as a source of opportunity and not a threat (Johnson, 2010b).

2.4.3.2 External white spaces

External white spaces entail generating new markets and identifying methods to serve new customers. Companies will have to create new business models to convey an attractive value proposition to new customers who have not been served due to the offering being too expensive, too complicated or customers not having access to the offering itself. These customers are known as non-consumers within a non-consumption environment (Johnson, 2010b).

To generate these new markets, organisations must identify the constraining barriers to the non-consumers. If the organisations can achieve this, they will essentially democratise its goods and services. The core barriers to consumption are wealth, skills, access and time (Johnson, 2010b).

Similarly, the transformation that occurs in the basis of competition within markets, the methods used for problems solving also changes as time goes on. When people do not have a lot of knowledge, they tend to guess, and when they do possess a great amount of knowledge, they tend to use familiar patterns or rules to obtain appropriate answers. This has become known as the problem-solving process. The problem-solving process can be represented by the simple flow diagram illustrated in Figure 2.21 below.

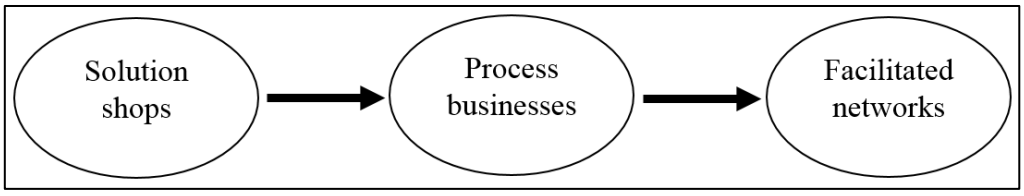


Figure 2.21: Problem-solving process
(Source: Johnson, 2010b)

Solution shops are the most effective when the ability to solve problems within an industry is at its initial stages. Problem solving is formless and initial activities try to identify patterns within solution shops. Solution shops use experts to generate specific solutions to what is considered exclusive problems. Consequently, remuneration is received by the company for providing the service.

Process businesses can identify patterns more easily leading to a rule-structured decision process. The increased predictable environment leads to process businesses implementing the integrated systems. Invoices with reduced margins are used based on the attained results. High volumes and low-cost regimes lead to increased generated value. Process businesses are also known as value-adding businesses.

With an environment where most people understand what is required due to circulated knowledge, facilitated networks form that utilise people with the same ideas to work together and interchange various solutions. Company income is received from marketing campaigns, subscriptions and transaction fees. The problem-solving process can be summarised and illustrated through business model archetypes seen in Table 2.9 at the top of the following page.

Table 2.9: Business model archetypes within the problem-solving process

	Solution shop	**Process business**	**Facilitated network**
Value Proposition	Experts draw on intuition and problem-solving skills to analyse problems and recommend solutions	Provide scaled products and services to fulfil more pattern-recognition and rule based JTBD at lower cost	Connect users with similar JTBD into a system where they can exchange, share, buy and sell goods and knowledge with other participants
Profit Formula	Fee for service, high margin, high overhead, low resource velocity	Fee for outcome, lower margins, low overhead, high resource velocity, scale	Membership subscription, advertising and transaction-based fees
Key Resources and Processes	People and knowledge	Predictable processes, integrated systems, manufacturing	Size and composition of customer base; IT system that enables connectivity
Examples	System integrators, law firms, consulting firms, advertising agencies	Retail, manufacturing, education, food services	Consumer banking, online auctions, Internet bulletin boards, telecommunications

(Source: Johnson, 2010b)

External white space opportunities are generated with every transformation. Markets are increasingly becoming democratised due to the broadening spectrum of communication technologies. Opportunities are constantly arising through which new value propositions and business models can be developed around these changes which will democratise goods and services and as a result penetrate the barriers to consumption (Johnson, 2010b).

2.4.3.3 Brand new white spaces

Chief alterations within the market place rarely occur, but when they do, they change the entire market environment. Examples of these alterations are include (Johnson, 2010b): 1) 9/11 attacks on the Twin Towers, 2) Commercialisation of the World Wide Web, 3) The 2008 financial crisis. These big events can transform the environment within entire industries, markets and global economies. When these events are perceived from a business model viewing point, they can be grouped within the following three general categories as shown below in Figure 2.22.

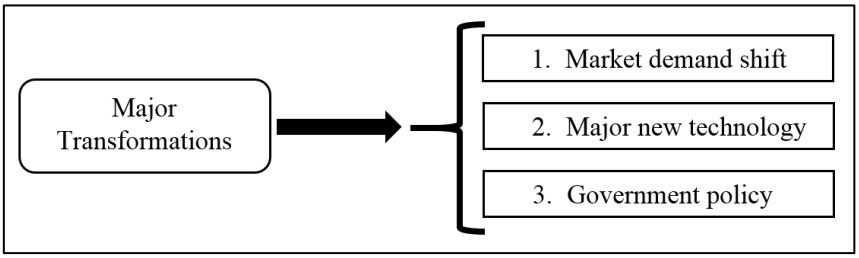


Figure 2.22: Three different types of major transformations
(Source: Johnson, 2010b)

Market demand shifts occurred during the conclusion of the Cold War. The United States started purchasing technologies and equipment that any general army would require, instead of sticking with the large scale, private and multifaceted equipment which they possessed during the Cold War. Consequently, their army had to transform from solution shops, to a process business which had to add value to endure the transformation (Johnson, 2010b).

The introduction of new technologies has the potential to generate new markets as well as lead the demise of others almost immediately. The CD industry for example has for ever been in a decline after Apple introduced the iPod and iTunes (Johnson, 2010b).

The final major transformation is changes in government policy, especially deregulation. Deregulation took place within the European airline industry in 1997, and resulted in a high increase of low-cost entrants. A single signature that changes a policy or regulation can result in an entire industry changing (Johnson, 2010b).

2.4.4 Requirement of a new white space business model

Johnson (2010a) states that, "it is nearly impossible for a business unit to adopt and operate more than one business at a time and do them all well". In other words, a firm that is sculpted to a certain set of procedures, operations and traditions to achieve a single thing, cannot do another thing simultaneously. It comes down to the point that certain elements within the profit structure of the business, prove to be challenging to modify - it is difficult to alter one of the elements without frightening the entire structure. Therefore, to effectively fulfil a new JTBD within an organisation's white space with a new value proposition, a completely detached and different business platform is required - a completely new business model.

The important point of interest is to know when a company's value proposition must enter a white space. A new business model is required, to satisfy the new customer value proposition, when the company finds that they must (Johnson, 2010b):

- Alter their profit formula. This is especially true regarding changes to the overhead cost structure and the resource velocity.
- Develop a new big set of key processes and resources.
- Generate profoundly dissimilar central rules, norms and metrics.

The above three points serve as conditions on how to classify a market opportunity as a white space. If one or more of the above points are found to be true, the company will require a new business model to compete (Johnson, 2010b). This is due to the opportunity lying within their white space. Yet, not every CVP requires a new business model or the execution of the BMI process. Companies can generate CVPs within new markets using their core business model. If this is possible the opportunities are adjacencies and not white spaces however.

2.4.5 White space mapping

White space mapping is an instrumental process which looks at various areas within the value chain of a business from a different perspective. It assists in discovering prospects that were previously unobvious and identifying opportunities (Mootee, 2010).

White space mapping is essential to the unearthing process that will lead a company to new revenue streams by discovering various opportunities within markets. Additionally, this process can be utilised to discover these new markets as well as act as a source of innovation for goods and services (Mootee, 2010).

The white space mapping process consists of looking at a company from three different perspectives, namely externally, internally and future focused perspectives. Each perspective is described further on the following page in line with the descriptions given by Mootee (2010).

2.4.5.1 Internal perspective

This view looks at the company from within, to plot the company's abilities. The company's systems, processes and structural framework are considered to identify how efficiently and successfully the business can respond to opportunities and threats. Obstacles are essentially identified that impede the company from obtaining new markets or to responding effectively to competition.

2.4.5.2 External perspective

The goal of this perspective is to focus on the factors outside the company. These include plotting the various markets, goods and service networks within the company's environment and deciding whether they are served, un-served or under-served. The aim is to find the openings within these networks that will serve as business opportunities for the company.

2.4.5.3 Future perspective

Strategy foresight exercises are used to look over a period of five years into the future. These exercises often include core assumptions which makes this perspective not as credible. However, it remains an important perspective because it can influence the company's strategy development.

2.5 Chapter summary

In conclusion, Chapter 2 lightly introduces the field of Enterprise Engineering, after which the concept of a business model and BMI is defined. Vital components are explained, and different models and approaches are discussed. Additionally, the concept of white space is explicitly defined, components described, and its required conditions are laid out.

Chapter 2 achieved the following objectives as stated in Section 1.3:

1. Identify current business model definitions, frameworks and components.
2. Identify current BMI definitions, frameworks, stages and activities.
3. Identify the limitations of current BMI frameworks.
4. Identify the transformation process of how to change from a current business model to a new innovative business model, and how it differs when pursuing a white space opportunity.
5. Define a white space opportunity.

The following objective is partially achieved:

7. Identify the relevant methods and tools necessary to assist the business model development process.

Chapter 2 aimed to establish the core base of the literature review. The following chapter, Chapter 3, relates various other fields of study to the concepts that were established in Chapter 2.

CHAPTER 3

LINKS TO OTHER ACADEMIC FIELDS

Chapter 3 is the second chapter of the literature review and serves to link Chapter 2 to other relevant academic fields. Innovation and innovation management is discussed in Section 3.1. Section 3.2 attempts to link business strategy with the concept of a business model, as well as describing the Blue Ocean Strategy. Finally, business opportunity identification and opportunity analysis are described in Section 3.3 and Section 3.4 respectively. Figure 3.1 below illustrates the position of Chapter 3 in relation to the research study.

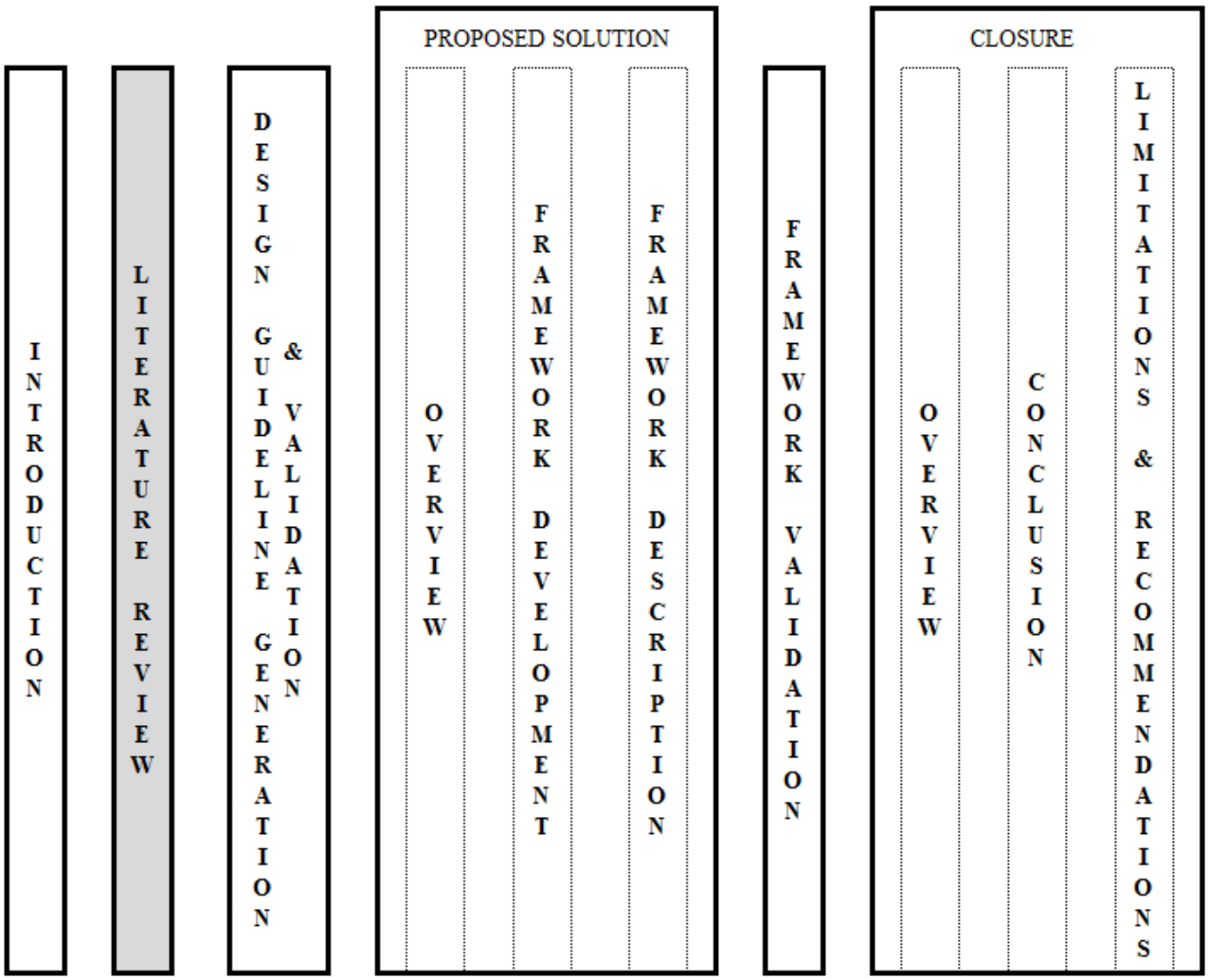


Figure 3.1: The position of Chapter 3 relative to the research study

3.1 Innovation and innovation management

This section starts by introducing and defining innovation and the management thereof in Section 3.1.1. This is followed by an illustration and description of two innovation frameworks in Section 3.1.2. Different types of innovations are then discussed in Section 3.1.3, followed by a final focus given to change management in Section 3.1.4.

3.1.1 Introduction

Innovation as a term can be widely perceived, used and understood in the business world. According to the Oxford Dictionary, innovation can involve the execution or progression of innovation, or it can be a new, fresh and different introduction of a good or service for example. Marais & Schutte (2009) stated that innovation is frequently mistreated within the marketing world to introduce new inventions. Thomke (2003) separated innovation from invention, by suggesting that innovation is novel and has value. Similarly, to distinguish invention and innovation, Tidd *et al.* (2005) defined innovation as, "a process of turning (an) opportunity into new ideas and putting these into widely used practice". This view of innovation is further reinforced by Trott (2008), as he suggests that innovation is invention converted into the economy.

Innovation is defined by Trott (2008) as, "the management of all activities involved in the process of idea generation, technology development, manufacturing and marketing of a new (or improved) product or manufacturing process or equipment". Trott suggests that innovation is a process that requires management. Tidd *et al.* (2005) stated that innovation consists of four main stages: Search, Select, Implement and Learn. This process is illustrated in Figure 3.2 and described in Table 3.1 below.

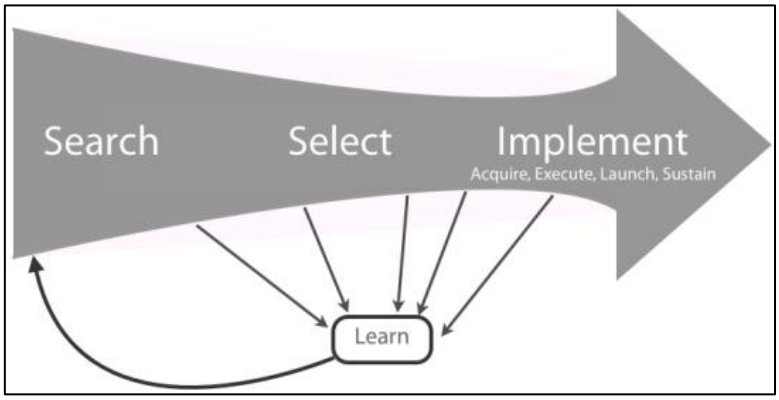


Figure 3.2: A generic innovation process
(Tidd *et al.*, 2005)

Table 3.1: Stage Descriptions of the Generic Innovation Process

Stage	Description
1. Search	Identifies new opportunities/ideas which can lead to potential innovations in the form of a good, service, process or business concept resulting in an increased competitive advantage.
2. Select	Precisely screens and selects innovative solutions.
3. Implement	Develops the chosen solutions into exploitable goods to execute, launch and sustain it in the external environment.
Learn	Situated externally, it receives input from each of the other three stages and gives an output back to the Search Stage.

(Source: Tidd *et al.*, 2005).

Therefore, innovation entails the complete process, from the generation of an opportunity, to its successful exploitation in the marketplace (Marais & Schutte, 2009). To manage innovation successfully Trott (2008) proposed an innovation management process which can be seen below in Figure 3.3.

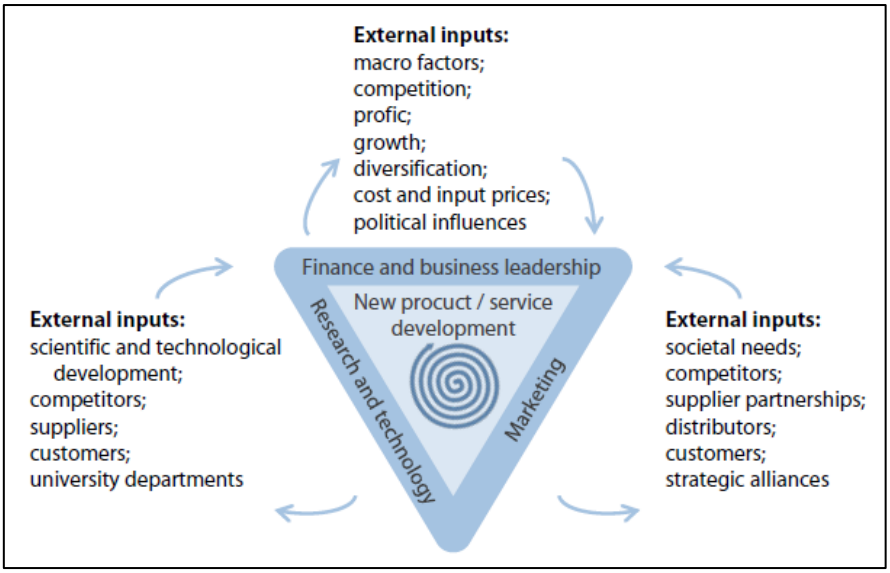


Figure 3.3: Innovation as a management process
(Source: Trott, 2008)

Figure 3.3 shows how the information flow and interaction between the identified business functions such as the marketing, research and technology, as well as finance and leadership serve as the main task to manage innovation successfully. As seen in Figure 3.3, collaboration between each respective business function and their environment is crucial for a company to obtain information.

The process of successful innovation management is therefore to inspire the collection of information from the external environment of an enterprise, as well as to assist the interacting streams of knowledge between the departments inside the organisation (Trott, 2008).

3.1.2 Innovation frameworks

According to Frankenberger *et al.* (2013) the consideration of the innovative processes, which companies follow, is a requirement to provide systematic guidance to BMI. This section introduces, illustrates and describes two different innovation frameworks, namely the Fugle Model and the Innovation Value Chain.

3.1.2.1 Fugle Model

A generic process exists which combines a convergent innovative funnel process and divergent innovative bugle process. The result is dubbed the Fugle process, designed by Du Preez & Louw (2008), which serves as a reference architecture for innovation.

The goal of the Fugle process is to assist companies to recognise, assess, advance, apply and take advantage of new goods and services in a more resourceful and operational way (Du Preez & Louw, 2008). The Fugle model is illustrated at the top of the following page in Figure 3.4.

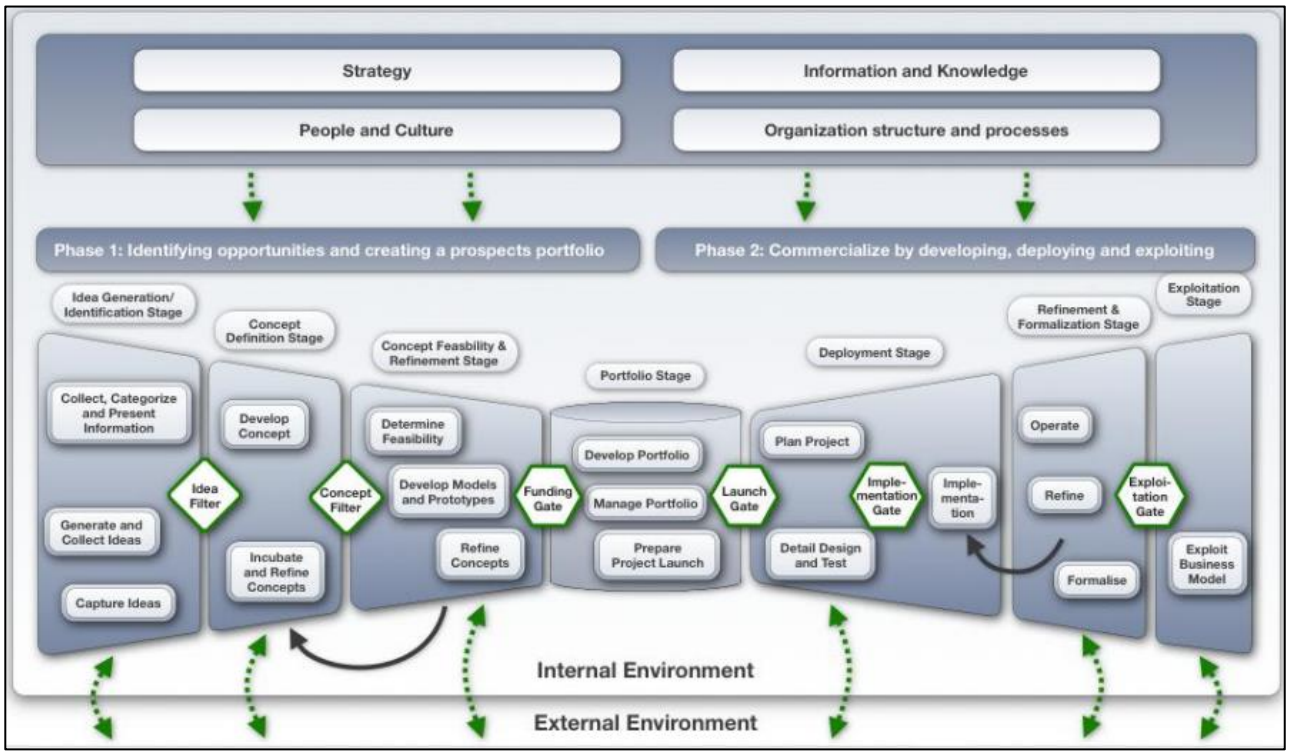


Figure 3.4: The Fugle model
(Source: Du Preez & Louw, 2008)

The Fugle model is divided into two different phases, which are connected by a Portfolio Stage. The portfolio stage acts as a bridge to move and manage Phase 1 smoothly over to Phase 2, where the output of the Feasibility and Refinement Stage is appropriately managed. Additionally, it ensures that the generated opportunities and company resources are correctly synchronised and in line with the company's strategy and objectives.

The Fugle process takes place within the internal environment of the firm, while the stages them themselves are connected to the external environment. The entire model is supported and guided by the management and organisational support functions (Du Preez & Louw, 2008).

Even though the Fugle model consists of separate stages, gates and filters, the events within the funnel phase relates to iterative loops within the stages. According to Gous & Schutte (2009), the Fugle model must be an innovative flexible process, which allows for overlapping activities between stages as well as containing linear and spiral concepts that act as processes.

The filters and gates act as points where a decision-making process takes place. During the funnel phase, the filter points acts more loosely due to the uncertainty involved in the beginning. Additionally, the filters filter any non-promising opportunities and concepts from proceeding. These rejected entities must be stored however because they could become valuable at a different time, due to changing circumstances (Du Preez & Louw, 2008).

Phase 1: Funnel

Phase 1 is a convergent process that aims to assess market opportunities as well as create and choose fresh designs and concepts. The components of this first phase are further elaborated on below and on the following page (Du Preez & Louw, 2008):

- Idea Generation/Identification Stage: This stage entails identifying, collecting, categorising and capturing new opportunities, that is worthy of pursuit for the company in question. This also involves discussing and considering how these opportunities will influence current and

future goods, services, procedures as well as business models. Du Preez & Louw (2008) state that opportunities can result from focussed processes or by chance. The idea stage involves making sure that the correct tools are in place to create ideas, place them in the correct order and finally keep them until they can become realisable concepts.

- Concept Definition Stage: This stage takes the generated ideas that have limited information, and converts them into realisable concepts that can be worked with. According to Du Preez & Louw (2008) the concept that is generated can stem from combinations of various ideas. The output of this stage contains a possible innovative solution.

- Concept Feasibility and Refinement Stage: This stage explores and refines the generated concept in more detail, to decide whether it is feasible or not. This stage involves a modelling and prototyping step to assist in the feasibility assessment (Du Preez & Louw, 2008). An iterative loop exists between this stage and the previous stage to refine the concept accordingly.

One of three possible results can be generated from Phase 1:

- Accept viable project: The concept is advanced further after which it is then realised.

- Halt viable project: The concept is not currently acceptable for instantaneous advancement, although it could be soon.

- Discard project: The concept is not suitable and therefore any advancement is stopped, and the concept is rejected.

Phase 2: Bugle

Phase 2 is a divergent process that aims to advance, realise, commercialise and take advantage of the innovations that have been passed through the Portfolio stage. The components of Phase 2 are further elaborated on below:

- Deployment Stage: This entails planning, realising and testing the selected innovative concept as designed and decided by the funnel phase. Additionally, it involves executing an in-depth analysis and testing plan of the design and its realisation and implementation. The detailed design takes place within this stage (Du Preez & Louw, 2008). Implementation involves the rollout and advancement of the solution.

- Refinement and Formalisation stage: This stage involves the commercialisation of the concept to obtain company sales. Additionally, the concept is further refined and improved while operating to obtain optimal functionality (Du Preez & Louw, 2008). The aim of this stage is about observing, gauging, assessing and adjusting the solution until it operates appropriately (Du Preez & Louw, 2008). The solution is finalised after acceptable functionality is achieved.

- Exploitation stage: Once the solution is formalised it is exploited in terms of new specific opportunities and new business models. This stage's focus is the generation of new and increased value from the final solution (Du Preez & Louw, 2008).

Filters and Gates

There was different types of gates and filters that was seen in Figure 3.4. Vital decision-making areas are represented by the gates and filters where the stage's outputs (either as ideas, concepts or implementable solutions) are accepted, paused or rejected with regards to their viability (Du Preez & Louw, 2008). The different types of gates and filters are explained at the top of the following page.

- Idea and concept filter: Ideas and concepts that have been originally reckoned to be possible potential opportunities may pass through these filters. Those ideas and concepts that are clearly not in line with the strategy of the company must be rejected and stored however.
- Funding gate: Concepts that have been reckoned to be tactically, financially and physically viable can pass through these filters.
- Launch gate: A decision is made whether the solution will be launched or not.
- Implementation gate: The detailed design is reviewed for a final time, after which it is decided whether it will be implemented or not.
- Exploitation gate: Opportunities that have been physically realised and that possess the possibility for further investigation can proceed through this gate.

3.1.2.2 Innovation Value Chain

Hansen & Birkinshaw (2007) proposed an innovation process consisting of three high-level phases: 1) Idea Generation, 2) Idea Conversion and 3) Idea Diffusion. Across these three phases, six core activities must be performed, namely internal sourcing, cross sourcing, external sourcing, selection, development and firm spreading. This framework is illustrated in Figure 3.5 below.

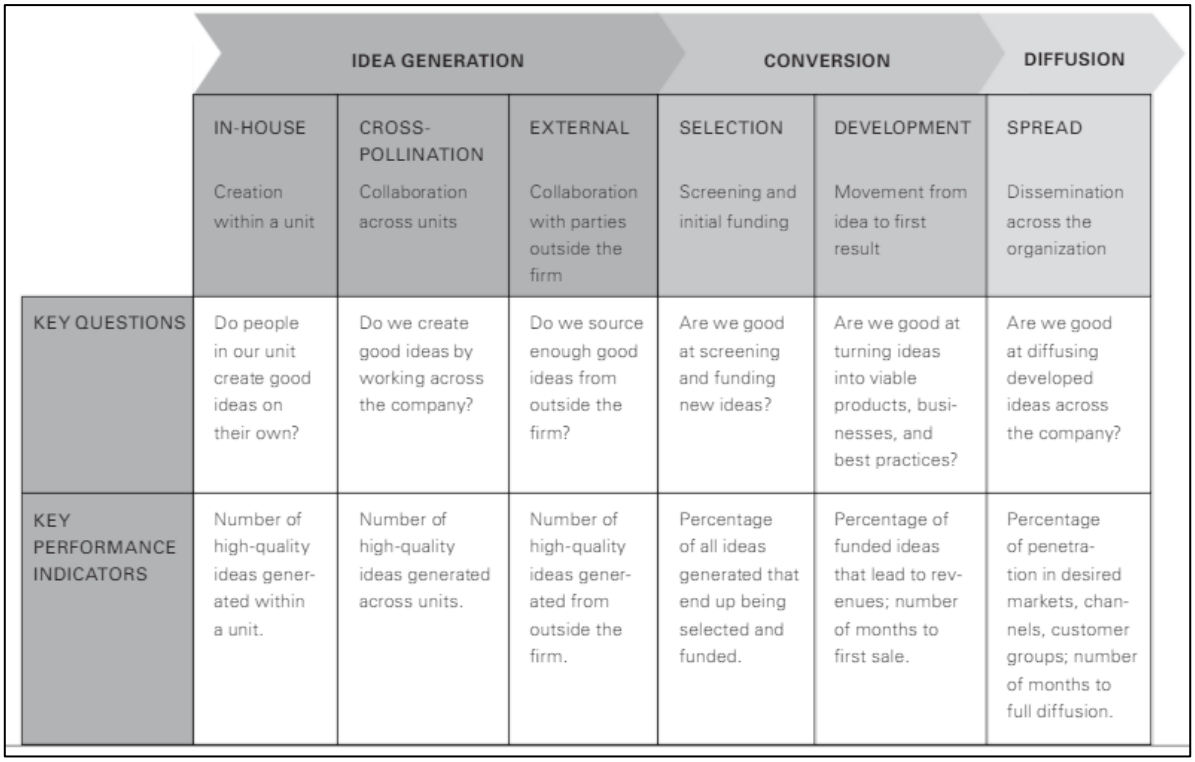


Figure 3.5: Innovation Value Chain
(Source: Hansen & Birkinshaw, 2007)

Figure 3.5 is explained in terms of its three high-level phases in the list starting below and overlapping to the top of the following page (Hansen & Birkinshaw, 2007).

1. Idea generation: Ideas are generated by looking at the internal, cross-unit and external aspects of the firm. Internal ideas are obtained by analysing a firm's functional groups for creative ideas. Cross-unit pollination can be difficult to achieve due to dispersed company assemblies and geographical distribution. Finally, external influences must be considered in the form industries, customers, end-users, competitors and suppliers.

2. Idea conversion: Hansen & Birkinshaw (2007) state that without a comprehensive selection and investment process ideas will not be developed and realised. This is often due to traditional thinking and tight investment criteria. Companies must have adequate commercial skills and be open to allocate funds to riskier projects.

3. Idea diffusion: Concepts that have been assessed, selected, received adequate funding and developed must be diffused. The final concept must be distributed from within the firm to all the necessary locations, distribution channels and customer segments.

The innovation value chain assesses innovation, presents managers with an end-to-end understanding of innovation and finally assists executives to identify opportunities as well as release realisable products and services within the commercial environment (Hansen and Birkinshaw, 2007). Additionally, it allows firms to focus on their weakest innovative aspects and initiates managers to be careful as to what should be implemented when trying to improve the company's innovation output. Hansen & Birkinshaw (2007) finally state that managers must view the process of converting ideas into viable results as an integrated flow.

3.1.3 Types of innovation

Hult *et al.* (2004) state that innovation is one the most crucial factors that have a direct effect on company performance. This section introduces the different types of innovation that are described in literature.

3.1.3.1 Open and Closed Innovation

Companies interact with the external environment to varying degrees and intensities, and the extent of how open or closed the firm is depends on the business environment (Dahlander & Gann, 2010; Lazzarotti & Manzini, 2009). According to Enkel *et al.* (2009) some companies profit due to open innovation, while other firms attempt to achieve a closed innovation model. Jolly (2008) states that open innovation brings external knowledge into a business and allows internally created knowledge to flow out of a business, to increase the potential of innovation in a company. On the other hand, closed innovation involves the development of internal knowledge through research and development (R&D) laboratories for example which are retained within the company (Jolly, 2008). This internal and external concept of open and closed innovation is illustrated in Figure 3.6 at the top of the following page.

Chesbrough (2006) defines open innovation as, "a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology." Open innovators can be characterised as being driven to seek out opportunities within their environment (Lazzarotti & Manzini, 2009). They can function in a very dynamically orientated environment and are able to identify possible new and unacquainted market (Fiss, 2011). They do not inhibit their exploration activities within their corporate boundary, but sometimes transfer notions, concepts, technologies and industries which results in the scanning of a widespread market environment.

Others are more sceptical of open innovation stating that popular innovative firms such as Proctor & Gamble and IBM, which maintain a large amount of their activities internally (Jolly, 2008). Meige (2009) defines closed innovation as, a "process leading to innovation (which) is completely controlled; all the intellectual property is developed internally and kept within the company frontiers until the new product is released on the market." The consensus however seems to be that closed

innovation is becoming increasingly slower and reaching its limits and therefore companies are moving to open innovation to obtain a competitive advantage (Chesbrough, 2006; Inauen & Schencker-Wicki, 2011; Pilav-Velić & Marjanovic, 2016).

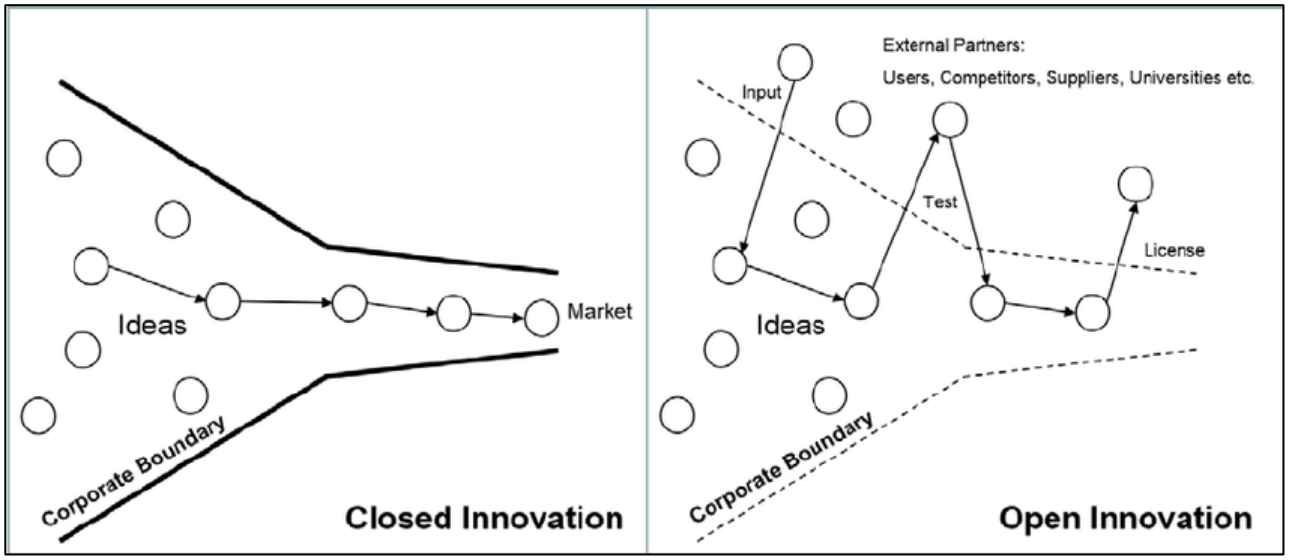


Figure 3.6: Closed versus open innovation
(Source: Egger *et al.*, 2016)

3.1.3.2 Sustaining and Disruptive Innovation

Sustaining Innovation

Charter & Clark (2007) state that sustaining innovation encompasses the entire area between incremental and radical innovation. They go on to define sustaining innovation as, a "process where sustainability considerations (environmental, social, financial) are integrated into company systems from idea generation through to research and development and commercialisation. This applies to products, services and technologies, as well as new business and organisation models". Charter & Clark (2007) describe that sustainable innovation is not limited to concepts only, but also includes entrepreneurship, the commercialisation of solutions as well as other ethical and social components.

Boons & Lüdeke-Freund (2013) state that sustainable innovation possesses a specific characteristic that requires it to be suitable in terms of technology for firms, as well as being efficient and providing a solution to problems associated with sustainability. They go on to describe that to be able to introduce sustainable innovation, a wide spectrum approach is needed to alter components at the organisational level, while concurrently considering environmental barriers that are linked to the manufacturing and consumption structures. This introduction can lead to high costs for initial and settled companies.

Disruptive Innovation

Disruptive innovation is a commanding theory that entails widening and evolving new market segments and creating fresh functionality which could lead to a disruption in existing market channels (Yu & Hang, 2010). According to Christensen & Hwang (2008), the theory itself assists in clarifying how complex and costly goods and services are transformed into a less complex and cheap structure. Disruptive innovation can be further explained in Figure 3.7 at the top of the following page.

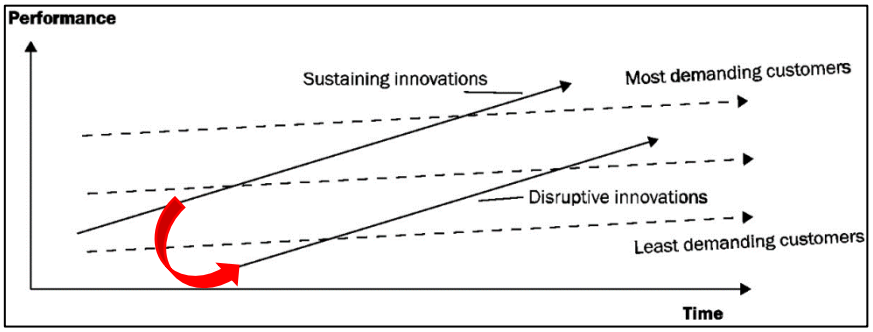


Figure 3.7: Disruptive innovation theory
(Source: Christensen & Hwang, 2008)

The solid line labelled "Sustaining innovations" describes the ever development and advancement of the good or service that is presented to the market. It results in the generation of high-end goods and services that can be set at an expensive price to the finest customers, resulting in increased profits. The intersection points between the different levels of customer demand, represented by the dotted lines, and the solid sustaining innovation line illustrate the fact that companies advance their product features at a quicker rate than what the customer market can utilise it. If this concept, of when a company's products possess too much functionality relative to the customer demand, realises a new kind of innovation occurs – disruptive innovation.

Disruptive technologies can be defined as, technologies that bring different values from the conventional and majority market technologies (Yu & Hang, 2010). These technologies are originally mediocre to the conventional technologies in terms of performance, which is a very important dimension to most of the customer market (Yu & Hang, 2010). This results in a cheaper and often more convenient type of good or service, presented to a part of the customer market that has been previously completely excluded (Christensen & Hwang, 2008).

Disruptive goods and services are mostly generated by new entrant companies, due to their products not appealing to the high-end market. Just like sustaining innovations, disruptive innovations always tend to develop and improve as time goes on. The results are that customers from the sustaining innovation companies realise that their demands can be met by the disruptive innovation companies (Christensen & Hwang, 2008).

The research done by Christensen & Hwang (2008) found that the only time a market leader transformed to becoming a leader itself within the disruptive innovation realm, was when it created a separate business unit orientated in line with the disruptive innovation's business model's Value Proposition. The Profit Formula was therefore generated on its own, which led to different business model processes and resources due it not being influenced by the original business model.

The differences between sustaining and disruptive innovation is summarised in Table 3.2 below.

Table 3.2: Sustaining and disruptive innovation differences

Sustaining Innovation	**Disruptive Innovation**
Dilemma is understood well	Dilemma is not understood well
Market that already exists	New market is created
Performance is improved, cost is lowered, incremental alterations	Dramatic and game changing
Customer can be believed	Customer does not know
Predictable market	Unpredictable market
Traditional business methods are sufficient	Traditional business methods fail

(Source: Choudhury, 2014)

3.1.3.3 Radical and Incremental Innovation

Radical Innovation

Tushman & Romanelli (1985) define radical innovation as, "processes of reorientation wherein patterns of consistency are fundamentally reordered." Various definitions for radical innovation exist, but the common theme however is that there is a fundamental change on the company's technology or resources (Holen & Engen, 2014).

Holen & Engen (2014) state that radical innovations result in a major market impact which can lead to the creation of a new market or the restructuring of the current market. According to Hercules (2015), radical innovation is important to remain competitive, advance in markets and identify new customer segments, especially against other organisations that execute radical innovation as well. In general, radical innovation is an intricate, non-discrete, tough, long and risky innovation strategy.

Incremental Innovation

According to Tushman & Romanelli (1985), incremental innovation on the other hand is regarded as an adaption that consists of small adjustments to the status quo and can alternatively be considered as a discrete process. These minor alterations can be applied to solutions such as products and services where it can result in new product features as well as service enhancements.

Hercules (2015) states that incremental innovation is the most common type of innovation today that is currently being used by organisations. Incremental innovation on business models can lead to the generation of new business models that do not negatively influence the original business models, as well as being used to protect and advance existing business models as well.

Finally, the differences between radical and incremental innovation is illustrated and described below in Figure 3.8 and Table 3.3 respectively. Figure 3.8 illustrates how radical innovation's trajectory can entail major market changes, while incremental innovation's trajectory on the other hand is defined by small incremental improvements.

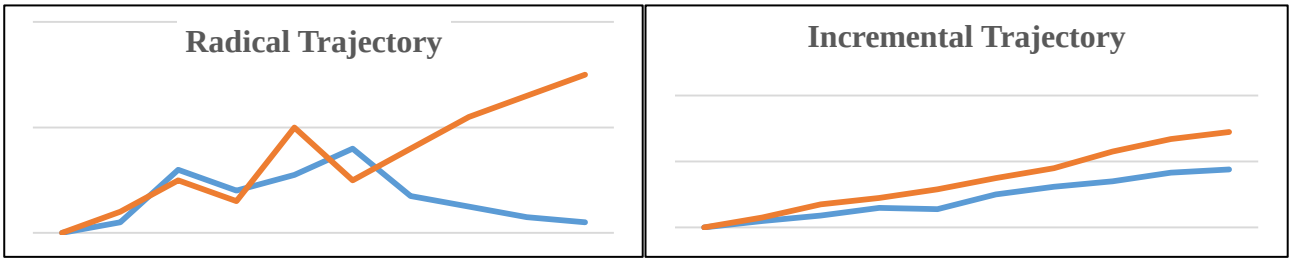


Figure 3.8: The different project trajectories for radical and incremental innovation (Source: Tjalve, 2014)

Table 3.3: Radical vs Incremental Innovation differences

Radical Innovation	Incremental Innovation
Utilises new solutions	Utilises existing solutions
High risk and uncertainty	Low risk and uncertainty
Concentrates on solutions with unparalleled performance	Concentrates on step-by-step improvements on existing solutions
Rare	Common
Results in big market changes or the generation of new markets	Results in an increase in competitiveness in the existing market

(Source: Tjalve, 2014)

The Ten Types of Innovation Framework, seen in Figure 3.9, will be described in Section 3.1.3.4.

Profit Model	Network	Structure	Process	Product Performance	Product System	Service	Channel	Brand	Customer Engagement	**Ten Types**
Configuration Focuses on the internal workings of a business system				**Offering** Focuses on a company's core products & services		**Experience** Focuses on a company's core customer elements				**Categories**
How money is made	Networks to create value	Talent and asset alignment	Signature superior methods	Distinguishing features & functionality	Complimentary products & services	Offering support & enhancements	Offering delivery to customers	Offering & business representations	Fostering of distinctive interactions	**Definitions**
Auction Financing Float Freemium Licensing Premium Subscription	Alliances Collaboration Consolidation Franchising Open Innovation Merger/Acquisition	IT Integration. Outsourcing. Competency Centre. Incentive Systems. Organisational Design.	Crowdsourcing Lean Production Localisation Logistic Systems Strategic Design Process Efficiency User-Generated	Conservation Customisation Ease of Use Focus Safety Styling Superior Product	Compliments. Extensions. Plug-ins. Modular Systems. Product Bundling. Integrated Offerings.	Added Value Concierge Guarantee Lease or Loan Self-Service Support Systems Loyalty Programs	Context Specific Cross-selling Diversification Experience Centre Flagship-Store Go Direct On-demand	Brand Extension Brand Leverage Certification Co-Branding Private Label Transparency Values Alignment	Curation. Mastery. Personalisation. Autonomy & Authority. Community & Belonging.	**Tactics**
Are there interesting differences between who uses the offering and who pays for it?	Does the company work with firms to develop new offerings that drive a shift from business as usual?	Does the company have a unique or unusual organisational structure?	What is the company uniquely skilled at doing or delivering across products, services, and platforms?	Does the company produce a notably superior offering that dominates market share or earn a premium?	Does the company make multiple products that connect with one another in unique ways?	Do customers rave about their interactions with the company?	Does the company deliver its offerings to customers and users in ways that challenge the industry?	Does the company have an unusually distinct identity, particularly compared to its rivals?	Does the company take arcane, difficult, or complex and make it easy for users to accomplish or master?	**Spotting Innovation**
Does the business generate cash quickly?	Has the company formed any unusual partnerships?	Does the company use hard assets in ways that are very different from competitors?	Does the company own a cluster of patents around a particular technology, methodology or process?	Conversely, are the company's products notably simpler and easier to use than those of competitors?	Does the company offer distinct products and services that can also be integrated or purchased as packages?	Has the company implemented methods that highlight additional product features or applications that make it easier to use its services?	Does the company use different channels in complimentary ways?	Does the company's customers and users see themselves as part of a distinct community or movement centred around the brand?	Do the offerings confer a unique identity, status, or sense of recognition to users?	
Are margins much higher or lower than competitors?	Conversely, does the company enable the offerings of other players by lending them its assets?	Is the company known for attracting top talent in a particular field or function?	Are the company's variable costs or working capital substantially lower than competitors or industry norms?	Do the company products possess unique features and functionality that captivate customers?	Are other players creating products that interface with the company's offerings?	Does the company provide any interesting forms of assurance around its offerings?	Do customers tell others about their memorable interactions with the firm?	Is the company's brand used by other business partners – including suppliers, customers or even competitors?	Do the company's offerings take on an identity and life of their own?	
Does the company make money in different ways than the competitors or industry norms?	Does the company collaborate with its suppliers and/or customers to develop, test or market new products?			Are the products uniquely styled or focused on particular niches and audiences in ways that other can't match?		Are there robust communities that celebrate the services or otherwise enhance their experience?	Do other players, including partners, customers, and even competitors – help sell or deliver the company's offerings?	Has the company extended a brand to an unusually diverse array of business, or used its brand to foster integration across offerings?	Do customers talk about how a product or service has become a part of their lives?	

Figure 3.9: Ten Types of Innovation Framework
(Source: Adapted from Keeley *et al*. 2013)

3.1.3.4 Ten Types of Innovation Framework

The Ten Types of Innovation Framework consists of three main categories, namely configuration, offering and experience, and ten different types of innovation. According to Keeley *et al.* (2013), the framework is a tool that can be used to analyse and advance innovation within a firm, identify opportunities, reveal innovation voids within an opportunity and assess competition. Furthermore, they state that by understanding the framework, it results in innovation being easier as well as more effective, complex and resistant within a company. Finally, the different types of innovations can be combined with each other in varying quantities and manners to strengthen innovation concepts (Keeley *et al.*, 2013).

3.1.4 Change management

Change management is a topic that has a direct relationship to BMI. Change management is first defined and described, and then its relationship with BMI is explained further.

3.1.4.1 Definition

A business system is explained by De Wit & Meyer (2010) as, the architecture that creates value in an enterprise. A company's performance can be drastically influenced when it moves away from its natural environment (Eckhardt & Shane, 2003). Strategy change agendas and plans are often used to realign the business system with its exterior stakeholders and markets (Kaplan & Norton, 2006). These strategic plans include insourcing, outsourcing, reduction in company costs and novel product introductions. A company is inhibited from moving too far away from its environment's demands by implementing these plans (De Wit & Meyer, 2010).

There are key differences between a business system and a supporting organisational system. A human element is required in an organisational system to implement the business system (Huselid *et al.*, 1997). The organisational system can be segmented into three categories, namely structure, processes and culture (De Wit & Meyer, 2010). This concept of a business and organisational system is illustrated below in Figure 3.10.

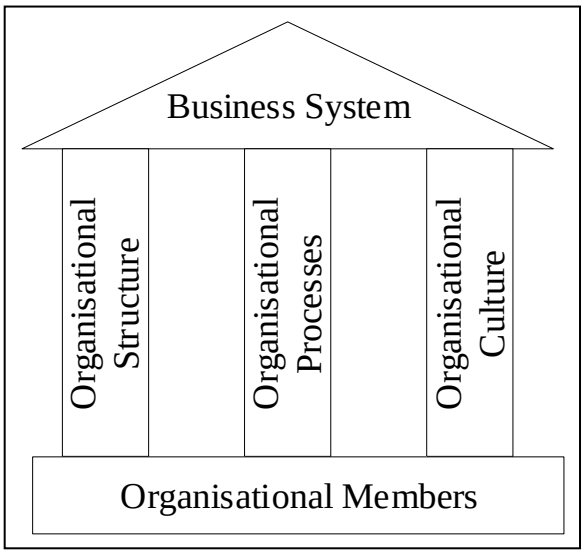


Figure 3.10: The three dimensions of an organisational system
(Source: De Wit & Meyer, 2010)

The three organisational structures are described in the list at the top of the following page.

- Structure: entails the division of personnel and resources as well as labour and responsibilities. The leadership hierarchy and flow of information is integrated.
- Processes: entails the processes of personnel and procedures.
- Culture: entails the personal aspects of an enterprise, namely the behaviour, attitude and morals of the personnel.

When a business system is required to be altered, it might be necessary to make corresponding changes to the organisational system. These changes are described further in the list below (Breiby & Wanberg, 2011):

- Speed: the amount of change induced.
- Scope: the range of change induced. It can either be a fine or wide systematic change.
- Pace: the rate at which change occurs.
- Timing: the time at which the change is initialised.
- Magnitude: the size of the change induced relative to the system itself.

The above changes can have the same result, but different paths as seen in Figure 3.11 below.

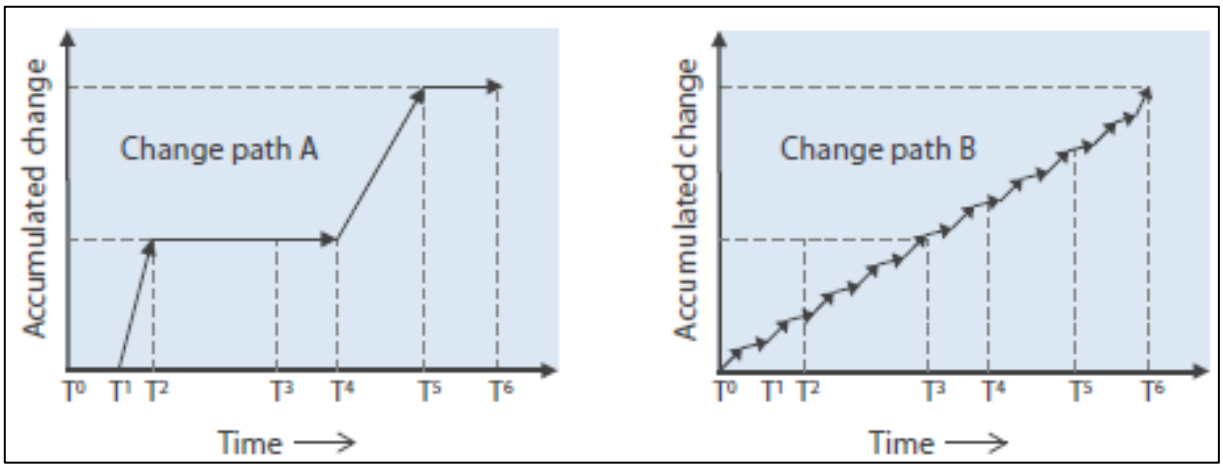


Figure 3.11: Two different paths of change
(Source: De Wit & Meyer, 2010)

Change path A and change path B in Figure 3.11 represent disruptive and gradual changes respectively. There has been much debate as to which approach to change is the best suited to achieve organisational change (De Wit & Meyer, 2010).

There are often different forms of resistance within a company once change has been initiated. The sources of these changes usually result from social, cultural, psychological and political factors. Other resistances can come in the form of fixed processes, structures and stakeholder agreements that result in path dependencies (Breiby & Wanberg, 2011).

A methodical process is therefore required to manage change. Three phases, which have the objective to create an accepting environment for change in an organisation, represent change where it is planned, implemented and then coagulated as suggested by Kruger (1996). These three phases are described in the list at the top of the following page.

1. Management of perception and beliefs: It concentrates on the cultural aspects of acceptance such as attitude, values and beliefs which is achieved through proper management to prepare the organisational stakeholders for change.
2. Power and politics management: This aims at behavioural approval of change within an organisation using leadership, enticements and sometimes pressure.
3. Issue management: It involves elements that are more apparent and translucent within the management of the change process. Quality, time and cost are the core focus points. The flow of information is more readily open to personnel who may also participate in the change process to a certain degree. This third and final phase is more organised and overseen.

Although many different methods of change management exist, the human element to initial change remains an important aspect. Finally, an understanding of how an organisational and business system is separated, is vital for innovation to occur (Breiby & Wanberg, 2011).

3.1.4.2 Change management and BMI

A few brief points are made below regarding how change management and BMI relates to one another (Breiby & Wanberg, 2011):

- If a business model was to be compared to a business system, an alteration in a business system can be represented by BMI, where both strive for the same theme: a concrete alteration in how an enterprise does business.
- Most literature focuses on big changes within a business system when BMI is discussed.
- If methodical changes occur within a business system during BMI, all enterprises that try to execute BMI will encounter certain barriers. Cultural management then becomes vital to oversee effective business model management. Additionally, the change management academic literature becomes applicable during the preparation and implementation phases of new business models.
- It is important to note that change management already starts before the business model implementation phase.

Section 3.2 introduces the concept of strategy.

3.2 Strategy

According to Teece (2010), business strategy must be considered to design a competitively sustainable business model. Section 3.2 links the concept of strategy to business models in Section 3.2.1 followed by a description of the Blue Ocean Strategy in Section 3.2.2.

3.2.1 Strategy and business models

When reviewing the academic research on strategy, there are various common issues to be found between strategy and business models. Strategy within companies is used to attain their objectives while providing structure on how to handle other competitors, customers as well as company growth and sustainability (Barney, 2014). All in all, Barney (2014) defines strategy as, the theory that defines how a business competes. Richardson (2008) elaborated on this and stated that, “the essence of

strategy is to create superior value for customers and capture a greater amount of that value than competitors."

According to De Wit & Meyer (2010), a strategy process entails strategic generation, alteration and contemplation which involves the procedures that generate strategy itself. Business models can take on lots of different roles when viewed in line with this strategy process. Strategic managers can make use of various varieties of models for motivation, imitation and experimentation within their strategic processes (Baden-Fuller & Morgan, 2010).

When motivation and imitation is required, strategists can survey, review and look for various companies within their external competitive environment and industries to identify the diverse types of business models that exist. This can be used in conjunction with conventional strategy examinations to generate a new strategy or an imitated or new type of business model (Baden-Fuller & Morgan, 2010).

If the experimentation stage is used, the process differs somewhat and takes on a more old-fashioned approach. In this stage, the strategic manager can generate a variety of business models and test their suitability by aligning it with the external markets and internal facets of the firm (Baden-Fuller & Morgan, 2010). Using this external and internal knowledge, the strategic manager can then decide which business model has the most potential to be the best suited to the parent company (Breiby & Wanberg, 2011).

Within industry development, there is a common occurrence where there is a convergence or divergence of business models within the firms that are competing with one another. Breiby & Wanberg (2011) considered the connection between business models and the evolution within an industry, where a varying industry context could be indicated by the convergence and divergence of business models. They found that when different kinds of business models converged, that it was a common indication that the industry is combined into less but larger companies. On the other hand, divergence of business models indicated that an industry was in its initial phases of advancement, or in the middle of an industry cycle caused by disruptive innovation that altered the market environment. From this business models connect to strategy by serving as an indicator within a market context.

Literature exists that describe the connection between business models and strategy within an organisational context, in which a relationship exists that is path dependent. Casadesus-Masanell & Tarzijan (2012) summarise that it is extremely challenging for firms to allow numerous business models to exist at the same time, within the same enterprise entity. Similarly, disruptive business models might have need of an entirely dissimilar asset platform that could result in an obstacle for the firm's management to integrate the innovative business model.

Strategy and business models have a multifaceted association with one another, with both having a close link on various levels (Casadesus-Masanell & Ricart, 2010). This leads to BMI having a robust link with strategic management; which is defined by systematic changes in the way that an enterprise is piloted. BMI is therefore attached to strategy itself.

It can be said that business models can be viewed as a type of strategic procedure input, a process for replication which takes within an enterprise through strategic alterations and an imaginative piece of equipment in strategy formulation (Breiby & Wanberg, 2011). There are certain cases where a business model emulates a realised strategy. By viewing these business models within an industry over time, a lot can be said about that industry itself.

Since there are different levels of strategy that exist, research has been done on the corresponding levels relating to business models. Therefore, business models can be viewed as following a strategy all the way from the top of an industry level down to the product level (Zott & Amit, 2008).

3.2.2 Blue Ocean Strategy

The Blue Ocean Strategy, designed by Kim & Mauborgne (2005), was developed to help businesses create new market sectors, instead of contending in present ones, which are uncontested while simultaneously making all the company's competition irrelevant. It is a fundamental, new method of executing business activities that leads to less money being disbursed to create new yet small profit margins, but rather move into new market spaces where there is a big potential to grow. The strategy sets out certain techniques, methods and tools to achieve the above while still creating a solid amount of progress in profit generation (Kim & Mauborgne, 2005).

The Blue Ocean Strategy is essentially a value innovation and cost reduction tool. Value is fashioned in a space where the company's activities positively touch both its cost framework, as well its value sector towards its customers (Kim & Mauborgne, 2005). Reduction in cost is made by eradicating elements that the industry in question competes on. Additionally, customer value is increased by generating and enhancing factors within the industry that has never been seen before. This search of company variation and low cost is shown in Figure 3.12 below.

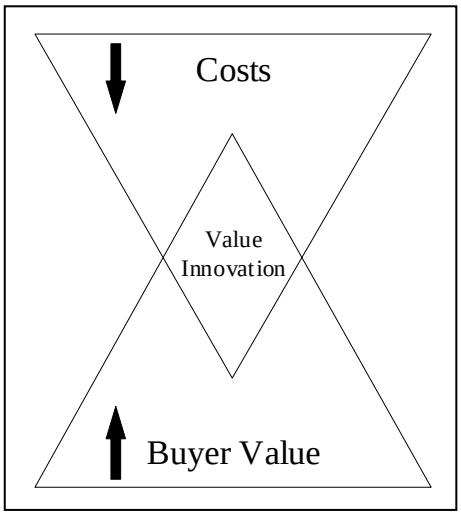


Figure 3.12: The generation of value innovation
(Source: Kim & Mauborgne, 2005)

According to Kim and Mauborgne (2005) many corporate businesses have always been competing with one another head-to-head for revenue growth, competitive benefits and market segments while struggling to achieve variation from the rest of the competition. The Blue Ocean Strategy describes this kind of market as a red ocean, which denotes all the markets that are in existence now. Borders and rules within a red ocean industry are defined, known and accepted. The more the industry becomes crowded the less the potential there is for company and profit growth. Essentially all goods are turned into commodities which leads to a type of cutthroat competitive environment turning the industry into a red ocean (Kim & Mauborgne, 2005).

The opposite of a red ocean is known as a blue ocean. The key differences between these two oceans can be seen in Table 3.4 at the top of the following page.

Table 3.4: The differences between red and blue ocean strategies

Red Ocean Strategy	Blue Ocean Strategy
Compete in existing market space	Create uncontested market space
Beat the competition	Make the competition irrelevant
Exploit existing demand	Create and capture new demand
Make the value cost trade-off (either/or)	Break the value-cost-trade-of
Alight the whole system of a firms activities with its strategic choice of differentiation or low cost	Align the whole system of a firms activities in pursuit of differentiation and low cost
Value creation/addition = added value	Value innovation = innovation value

(Source: Source: Kim & Mauborgne, 2005)

Blue ocean industries are defined by unknown and untouched market sectors where there is a lot of potential for big revenue and company growth. These untapped markets are typically created within red oceans by stretching or redefining the borders. This creates an entirely original and new market segment (Kim & Mauborgne, 2005).

3.3 Opportunity identification and entrepreneurship

Entrepreneurship must have taken place in one form or another for a business entity, and therefore a business model, to exist. Entrepreneurship is crucial for initial firm growth and the generation of jobs (Bygrave *et al.*, 2002). Even though entrepreneurship can be seen all around us, the academic literature surrounding it is constantly developing and a specific conceptual domain must still be anchored (Chung, 2004). Opportunity identification on the other hand is a centric and vital attribute that is necessary for entrepreneurship to exist (Singh, 1998).

Entrepreneurship is fundamentally motivated by opportunities (Chung, 2004), and can be viewed as a process in which these opportunities are chased irrespective of the amount of resources available. Opportunities are essentially discovered by entrepreneurs to exploit the imbalances within the economy by understanding and identifying factors that others do not (Chung, 2004). It was proposed by Bygrave (2010) that the process of entrepreneurship can only exist if opportunity identification, entrepreneurs and the necessary base of resources are linked to establish a business. Sections 3.3.1 and 3.3.2 highlights the prominence of uncovering opportunities to entrepreneurship as a vital and crucial first step of the entrepreneurship process that leads to the establishment of a business entity and therefore a business model.

3.3.1 Literature behind an entrepreneurial opportunity

An entrepreneurial opportunity is an imperative but difficult concept due the varying definitions that exist. To cement a solidified platform for the following text, a greater understanding is required of the issues related to an entrepreneurial opportunity and its definition (Chung, 2004).

3.3.1.1 Entrepreneurial opportunity definition

To define an entrepreneurial opportunity, it will be useful to look at the definitions of the two separate terms first. Solomon (2011) defined an opportunity as “a favourable time, occasion or set of circumstances for doing something”. Solomon (2011) also defined an entrepreneur as, “a person who starts a commercial enterprise, especially one involving financial risk”. Of course, the word entrepreneurial is just an adjective of entrepreneur. Therefore, an *entrepreneurial opportunity* is a

positive period, event or conditions to establish a commercial business which entails taking a financial risk (Chung, 2004).

In the context of entrepreneurial literature, Krackhardt (1995) defines an opportunity as, "a kind of subjective utility mapping, wherein one assesses how valued a future state might be and how reasonable it is for one to expect to be able to attain that state". The definition of an opportunity finally comes down to it depending on the viability and attractiveness as perceived from the entrepreneur.

From the above discussion Singh (1998) defined an *entrepreneurial opportunity* as, "a feasible, profit-seeking, potential venture that provides an innovative new product or service to the market, improves an existing product/service or imitates a profitable product/service in a less than saturated market". Shane (2003) takes a different approach and defines an entrepreneurial opportunity as "a situation in which a person can create a new means end framework for recombining resources that the entrepreneur believes will yield a profit". There lies a difference in the two definitions: Singh uses a generic approach and definition while Shane focuses more on a newness and revolutionary type of framework.

It can be concluded that from an individual's perspective that an *entrepreneurial opportunity* can be defined as, "an individual's perception of a feasible and desirable future state that is different from the current one, by providing the market with an innovative, novel product/service/technology either in an existing business or in a new venture" (Chung, 2004).

3.3.1.2 Opportunity innovativeness

Schumpeter (1934) believed that the core of any opportunity existed in its innovativeness. He suggests that alterations within the technological markets, politics, social tendencies and big economic elements all generate fresh information that can be utilised to recombine resources into a higher valued unit by entrepreneurs.

Drucker (1985) identified seven key sources of change that should be examined from which entrepreneurial opportunities arise from. These seven sources are listed below:

- An unforeseen success or failure of an outside event.
- The oddness of what reality is and what reality should be like.
- A process need on which innovation is based on. This can include improving a process that already exists, interchanging a weak component or supplying a missing component.
- Unforeseen alterations in the assembly unit of an industry or market.
- Demographics, changes in a population's size, age, composition, educational level, employment status, or salary.
- Alterations in views, mood and meaning.
- New scientific and non-scientific knowledge.

Romero & Molina (2015) supported the above seven points by using it in their Customer-Centric Model which will be referenced to in Chapter 6. The first four points relate to a company's internal sources, while point five to seven relate to changes within the external environment. The seven sources are slightly vague and tend to intersect, however every point requires an isolated analysis to

gain a better understanding of potential innovation sources for company opportunities (Romero & Molina, 2015).

3.3.2 Opportunity identification

Before an opportunity can be exploited and utilised, it must first be identified. Entrepreneurship literature has long regarded opportunity identification as the first and vital step within the entrepreneurship process (Baron, 2004).

Given a certain set of conditions, some people can identify opportunities which others under the same conditions will overlook (Shane, 2000). Chung (2004) suggests that the reason behind this is due to exposure and ownership of past and new information known as information corridors, as well as excellent cognitive abilities, known as cognitive properties, which both aid in opportunity identification. Information corridors is based on a conjecture that some businesses and people possess certain information that plays an important role in assisting them to identify opportunities. Cognitive properties entail the capabilities of some people to put together and integrate concepts and information into fresh ideas leading to new opportunities.

Models exist in current literature that point to opportunity identification being a process and not simply a flash of insight (Chung, 2004). The models that were first developed were linear. Long & McMullan (1984) suggested a four-phase process in which opportunities could be identified: prevision, point of vision, opportunity elaboration and finally the decision to proceed. Eight years later, Gaglio & Taub (1992) suggested a similar four step process: pre-recognition stew, Eureka experience, idea development and finally also the decision to proceed.

Ardichvili & Cardozo (2000) however propose a comprehensive model and framework regarding opportunity recognition. The model can be seen below in Figure 3.13.

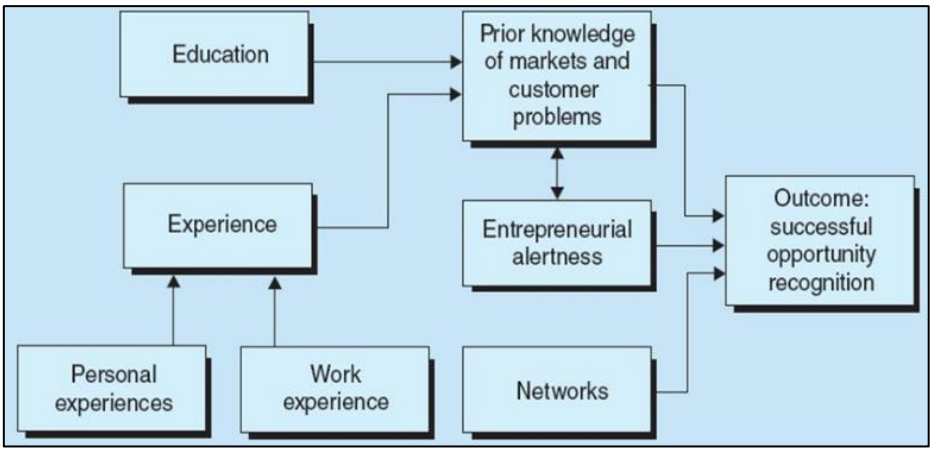


Figure 3.13: Opportunity recognition process model
(Source: Ardichvili & Cardozo, 2000)

From Figure 3.13 education, experience and entrepreneurial alertness plays an important role in obtaining prior knowledge, which was discussed alongside the concept of information corridors. This prior knowledge assists in capturing extra information regarding industries, production processes and technologies. Additionally, it affects an individual's ability to identify solutions when confronted with problems by becoming more task efficient and finally there seems to be an increase in intuitiveness with regards to thinking during a decision-making process (Lim & Xavier, 2015).

According to Lim & Xavier (2015), entrepreneurial alertness is the process and perspective that enables entrepreneurs to be aware of alterations, moves and opportunities regarding information about

a markets conditions. Experience, which can be categorised into personal experience and work experience, generates tactic knowledge while formal education leads to explicit knowledge. Formal education increases an entrepreneur's knowledge which in turn increases the person's skills to identify opportunities.

Networks, in the form of social networks, is the final key block which plays a vital role in opportunity recognition. The activities within an entrepreneurial process is not confined to a vacuumed area, but is integrated within a social and cultural context. The literature behind social networks proposes that individuals are linked to one another through their social networks. Social networks enable individuals to obtain assistance and information, as well as create positive conditions for the exchange of information and the generation of new knowledge and ideas (Lim & Xavier, 2015).

3.4 Opportunity analysis

Since a foundation has been laid on how to identify an opportunity, the logical step to follow would entail the analysis of the identified opportunities. Section 3.4 starts off by briefly describing the importance of opportunity analysis and defining it followed by an explanation of an opportunity assessment framework.

3.4.1 Opportunity analysis importance and definition

According to Stevens (2012), one of the most crucial and common decisions that a business must make is whether to start a new business. He goes on to state that a requirement for such a decision is a comprehensive feasibility analysis. Many businesses and their corresponding managers came to the realisation that to succeed they must have plans in place for the long term and the short term which are both strategy related. Opportunity analysis is a crucial part of this strategic planning process (Stevens, 2012).

Opportunity analysis is defined by Stevens (2012) as 'the process of defining the exact nature of the opportunities available in an organisation's operating environment in terms of external, financial and internal considerations'. These considerations will be elaborated on further in the following section in line with the opportunity analysis framework as designed by Stevens (2012).

3.4.2 External, internal and financial considerations

Various factors affect the strategic options of a firm. These factors can be categorised into three different kinds, namely external, financial and internal all of which is necessary for a pro forma analysis of an opportunity (Stevens, 2012). These three factors and their dynamics surrounding the analysis of an opportunity is illustrated in a framework, designed by Stevens (2012), in Figure 3.14 at the top of the following page.

Figure 3.14 presents a framework through which an opportunity is analysed *before* a decision is made to pursue it. After the framework has been utilised, the user will be in possession of a solid data base from which different alternatives, which are situated in the environment, can be chosen from (Stevens, 2012).

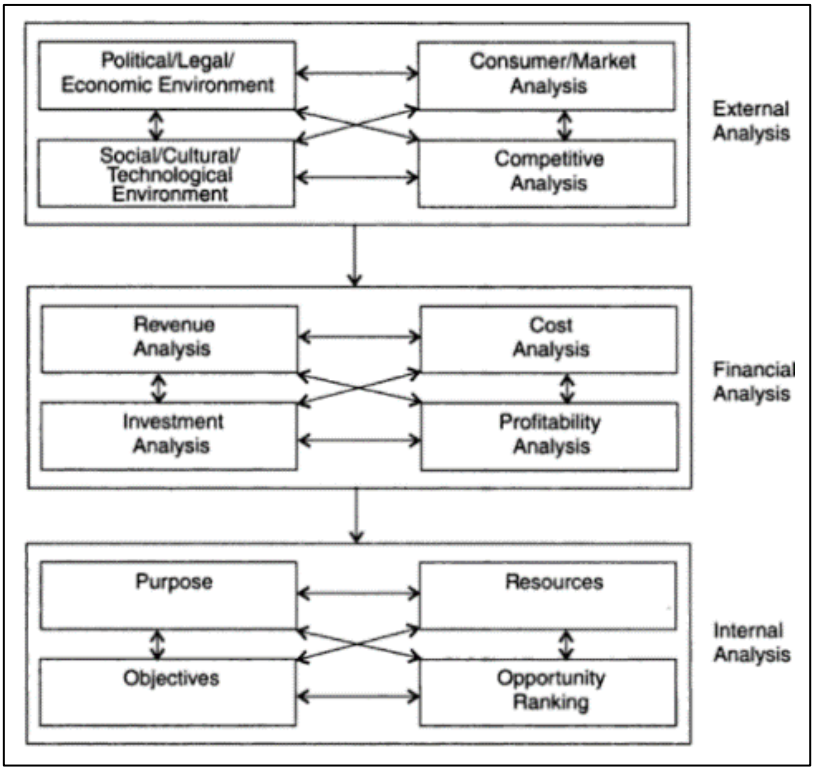


Figure 3.14: Opportunity analysis framework
(Source: Stevens, 2012)

3.4.2.1 External Analysis

The framework kicks off with an in depth environmental study in which the organisation in question will do business in. According to Stevens (2012), due the externality of these considerations, an effort must be made to stay diligent throughout the analysis, which will also require a considerable quantity of time as well as money. The consideration which form part of the external analysis is explained in Table 3.5 below.

Table 3.5: Considerations to be considered within the external analysis

External Considerations	**Explanation**
Competition	The behaviour or prediction of behaviour of competitors surrounding the firm's external environment can be examined.
Economic Factors	Simple economic factors such as the inflation, interest rate and flow of cash all have influence on most if not all companies today.
Market Size	Market magnitude and type determines the kind of opportunities that become available. Additionally, the market growth and period of existence determines the level of commitment a business will execute.
Governmental Regulations	The government of a nation has the power to regulate the economy at will. Government regulations have the ability provide opportunities but also restraints, often resulting in an increase in costs however.
Social Change	Social change is a slow alteration process which can eventually have a massive effect on a firm. Effort needs to be put into tracking these social changes to determine their effect on a company.
Political Conditions	A factor that must be considered when doing international business is the political uncertainty of events within countries.
Nature	Natural disasters can have a sudden and devastating effect on a firm.
Technology	Major developments in technology generates various opportunities which can be taken advantage of by firms.

(Source: Stevens, 2012)

3.4.2.2 Financial Analysis

Once the external analysis has been deemed favourable, the next stage is to move to the financial analysis. This analysis looks at the financial effects of the opportunity and namely reveals the potential associated revenue, cost and return on investment as explained in Table 3.6 below (Stevens, 2012).

Table 3.6: Considerations to be considered within the financial analysis

Financial Considerations	**Explanation**
Revenue approximation	The approximation of potential attainable revenue is important data that is required, and which must be considered to forecast the effect of entering a new market as a competitor. A company must estimate the market share they will be able to capture and therefore the associated revenue streams.
Cost approximation	The cost approximations must reveal the costs related to the revenues that are produced. Every cost within the proposed endeavour must be a truthful reflection of the earning or cash flows which are expected to be generated.
Return on Investment	Once the cost and revenue approximations have been calculated, the return on investment is to be analysed. There two main areas of focus during this analysis. The first is the type of investment required to compete successfully. Second is the potential of earnings that can be gained through the type of investment that is made.

(Source: Stevens, 2012)

3.4.2.3 Internal Analysis

The third framework stage involves an internal analysis. Even if an opportunity passed the external and financial analysis, it might still not suit the company's mission, objectives or resources. Opportunities that do not fit are discarded and pushed aside for other fitting opportunities. The company's mission, objectives and resources must be examined in line with the potential opportunity as explained in Table 3.7 below.

Table 3.7: Considerations to be considered within the internal analysis

Internal Considerations	**Explanation**
Resources	To be able to accomplish a firm's objectives, a certain magnitude of resources is required. Resources can include human, financial and physical resources or any other type of resource the firm has the capability to attain.
Corporate Objectives	A clear set of corporate objectives is required for a company to understand what exactly they want to achieve and therefore their organisational mission. The set of corporate objectives become a key point against which the company will measure their effectiveness against.
Mission	A mission statement of a company defines the type of organisation a company is as well as the type of organisation a company is striving to be. It serves as a guide when strategic decision-making is executed.
Opportunity Ranking	The opportunities are assessed and ranked from most to least promising.

(Source: Stevens, 2012)

3.4.2.4 Discussion

From the descriptions provided in Section 3.4.2 the following can be concluded: the external considerations describe the nature of an opportunity and the financial factors describe the financial effect of the opportunity. Finally, the internal considerations are used to decide whether an opportunity should be pursued as well as whether the company in question is capable to do so.

It is strongly advised to companies not to rush into a quick and final decision without executing the opportunity analysis framework as the chances of failure in doing so greatly increases (Stevens, 2012). Of course, the chance of failure due to unexpected events and conditions is always possible, but the chances of pursuing an opportunity effectively can be significantly increased through comprehensive examination and analysis - before a final decision is made (Stevens, 2012).

3.5 Chapter summary

Chapter 3 linked branching fields of study to the core and established concepts that were provided in Chapter 2. These fields of study were namely innovation and innovation management, strategy, opportunity identification and finally opportunity analysis. Innovation was introduced and defined as well as a description of various types of innovation frameworks, types and change management was given in Section 3.1. Section 3.2 linked strategy to business models, as well discussing the prominent Blue Ocean Strategy. Opportunity identification and analysis was provided to lay a foundation on how opportunities, and eventually white spaces, could initially be identified and analysed to choose the most promising opportunity. The Fugle model is the chosen innovation model for this research study because it provided the most comprehensive description of the various innovation phases from identification to exploitation.

Chapter 3 partially achieved the following objective as stated in Section 1.3:

7. Identify the relevant methods and tools necessary to assist the business model development process.

The next chapter, Chapter 4, provides a summary of the literature as well as a synthesis in terms of business model components, business model design guidelines and critical BMI stages.

CHAPTER 4

LITERATURE REVIEW SUMMARY AND SYNTHESIS

Chapter 4, which is the third and final chapter of the literature review, serves to summarise the literature review and synthesise it in terms of certain aspects. Section 4.1 gives a brief overview of the literature review followed by Section 4.2, which summarises Chapter 2 and 3 in more detail. Section 4.3 provides a synthesis of the literature review in terms of: 1) Structural business model components, 2) Design guidelines and 3) Critical BMI and innovation stages. Finally, Section 4.4 summarises this chapter. The position of this chapter relative to the research study is shown below in Figure 4.1.

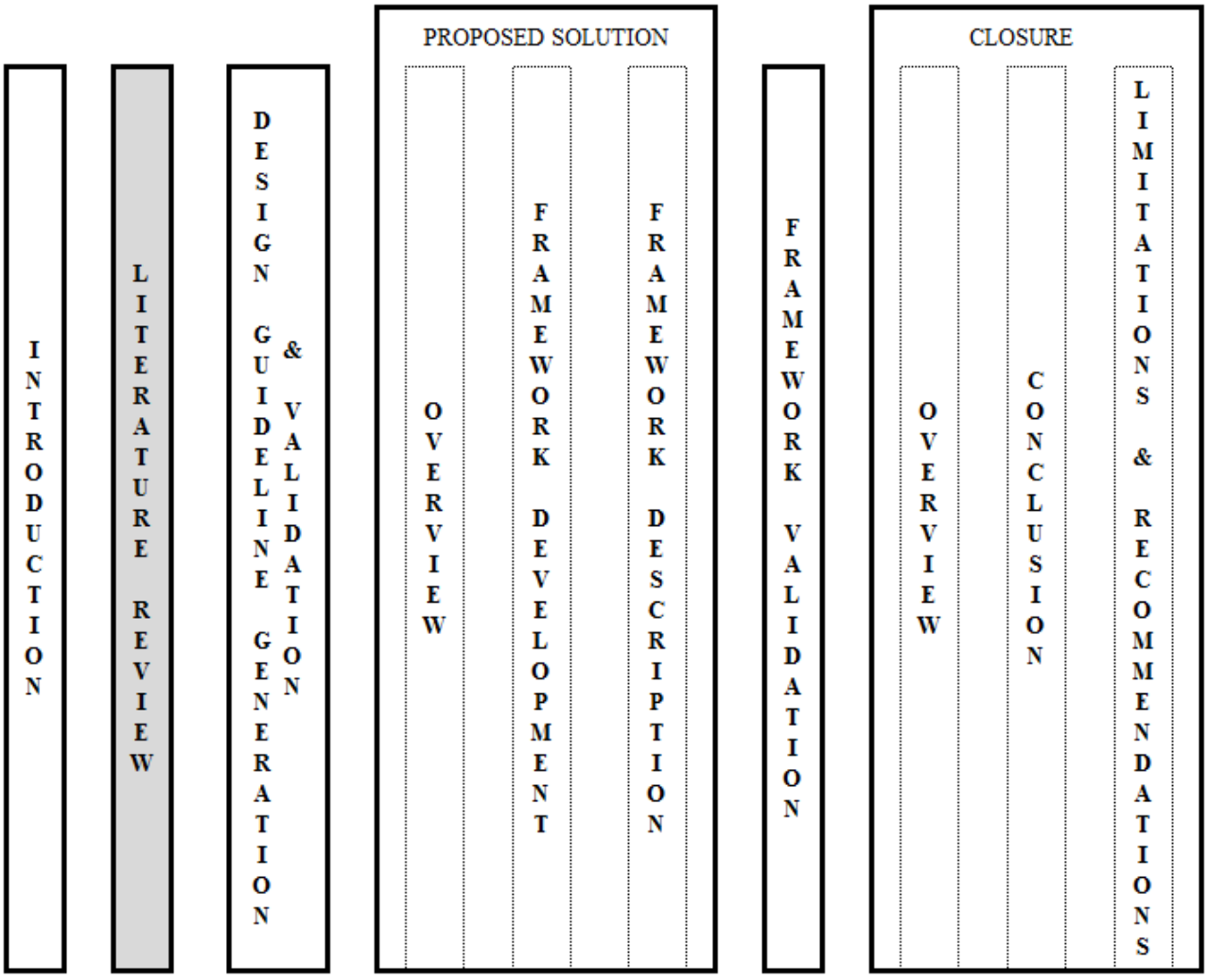


Figure 4.1: The position of Chapter 4 relative to the research study

4.1 Overview

The literature review was executed in an explorative manner, which advanced through various research domains to provide a comprehensive and organised approach to the research problem presented in Chapter 1. Chapter 2 briefly introduced the all-encompassing field of enterprise engineering after which the concept of business models, BMI and white spaces was described and explicitly defined. Chapter 3 broke off from Chapter 2 and broadened the view of it by linking it to related and important fields of study, namely innovation and innovation management, strategy, opportunity identification and opportunity analysis. The path taken by the literature review can be seen below in Figure 4.2.

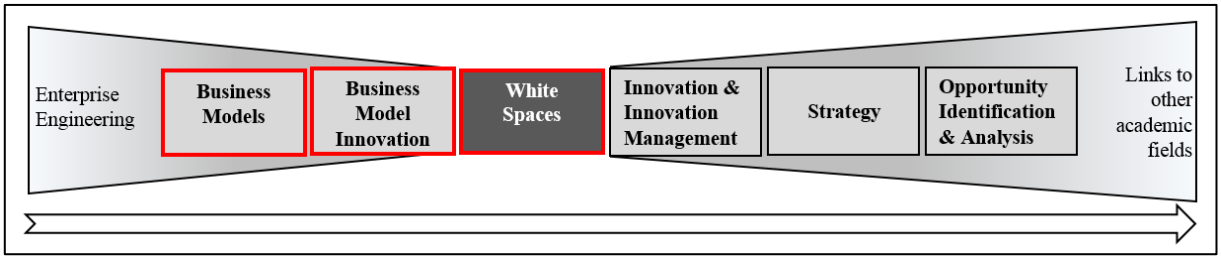


Figure 4.2: Exploration path of the literature review

The following section summarises the literature review in terms of Chapter 2 and 3.

4.2 Literature review summary

This section summarises in a brief description Chapter 2 and 3. Important areas are highlighted and further summarised in a tabular format within Appendix E.

4.2.1 Chapter 2 Summary

Chapter 2 served to present the core literature surrounding the research study. It showed that any type of business runs according to a certain business model, which can be broken up into various components. The chosen business model framework was the Business Model Canvas by Osterwalder & Pigneur (2010), due to its popularity and simplicity. The elaboration of BMI illustrated that it can be complex process which is inherently iterative in nature. It was noted from the current BMI frameworks in that they (a) often do not address the concept of white space opportunities, (b) lack business model design guidelines at a component level, (c) contain little to no decision-making structures, (d) address BMI at a high-level with a limited amount of stages and (e) often lack a set of comprehensive tools within their stages. It was noted that Johnson's Repeatable BMI Process could be vastly improved and made more comprehensive by combining it with elements of the other frameworks as well as other related fields of study.

Finally, the concept of a white space was described in detail for it to be fully understood. This is necessary since the research study revolves around designing an appropriate business model for a white space opportunity. Therefore, the key components of Chapter 2 consisted of the Business Model Canvas, the various BMI frameworks and processes, and finally the information surrounding a white space opportunity. The six BMI frameworks that were described in Chapter 2 are summarised in Section E.1 in Appendix E.

4.2.2 Chapter 3 Summary

Chapter 3 played an important literature expansion role by presenting various fields of study that can be linked to Chapter 2. The Fugle model was chosen as the innovation process that will guide the overall proposed framework, due to it providing a good description of the various innovation phases from identification to exploitation. Thus, it is an important component within Chapter 3, along with the other innovation frameworks, which are summarised in Section E.2 in Appendix E. The elaboration of how and opportunity is identified and then analysed within Chapter 3 was reviewed to assist on how to go about initially identifying and assessing a white space opportunity.

The following section synthesises the literature review in terms of certain aspects.

4.3 Synthesis

Appendix E briefly summarised the business model, BMI and innovation frameworks that were covered in the Chapters 2 and 3. This section presents a synthesis of these frameworks that were explored in the literature review. The aim is to extract all the key business model structural components, design guidelines and critical process stages, described in these frameworks and literature sources to develop a comprehensive BMI framework, specifically targeted at white space opportunities.

Section 4.3 synthesises the literature review by reflecting on it terms of the following critical aspects: structural business model components, lack of design guidelines and critical BMI process stages in Sections 4.3.1, 4.3.2 and 4.3.3 respectively.

4.3.1 Business Model Structural Components Analysis

Frankenberger *et al.* (2013) stated that, "business model literature has not converged to a common opinion as to which components exactly make up a business". To address this, a structural comparison of the components of a business model was generated by assessing the content of each component between the various structural business model frameworks, as well as the Ten Types of Innovation framework, and then categorising them according to their similarities, seen below in Table 4.1.

Table 4.1: Comparison of the different business model components

Four Box Business Model	**Business Model Canvas**	**Value Business Model**	**Triangular Business Model**	**Ten types of Innovation**
Johnson (2010b)	Osterwalder & Pigneur (2010)	Richardson (2008)	Frankenberger *et al.* (2013)	Keeley *et al.* (2013)
Customer Value Proposition	Customer Segments; Value Proposition; Customer Relationships.	Value Proposition	Who; What.	Product Performance; Product System; Service; Customer Engagement.
Profit Formula	Cost Structure; Revenue Streams.	Value Capture	Why	Profit Model
Key Resources	Key Resources; Key Partnerships; Distribution Channels.	Value Creation; Value Delivery.	How	Network; Structure; Brand; Channel.
Key Processes	Key Activities	Value Creation; Value Delivery.	How	Process

Although the Ten Innovation Types is not strictly defined as a business model framework, the types of innovation elements themselves are very similar to that of a business model's components and therefore an attempt was made to categorise them with the other business model frameworks.

The varying business model components seen in Table 4.1 support the concept that consensus has not been reached as to which components makeup a business model. Aspects of Table 4.1 will be utilised in the white space BMI framework to assist with the design aspects of a new business model, as will be explained in Chapter 6, and be accordingly validated in Chapter 7, to propose a new business model structure.

4.3.2 Business Model Design Guidelines

As was seen in the description of the prominent business model frameworks in Section 2.2.3, the frameworks only describe how each business model component functions. Therefore, there is currently a lack of frameworks or studies that identify and summarise business model design guidelines, especially at a detailed component level. Currently, key statements and questions are spread over various studies and there is also no consensus in the literature regarding design guidelines. This is the observation of the author after an evaluation of the literature. To address this, component-specific design guidelines will be generated and validated, as will be seen in Chapter 5. The chosen components for the design guidelines are the nine building blocks of the Business Model Canvas due to their high popularity in literature.

4.3.3 Critical Process Stages

Frankenberger *et al.* (2013) states that business model scholars have very rarely adopted a process perspective towards BMI. To identify the critical sequential process stages to include in the proposed framework, six BMI frameworks and three innovation frameworks were analysed in terms of their critical similar stages. Frankenberger *et al.* (2013) state that, "A prerequisite for providing systematic guidance on business model innovation is to analyse the process that companies innovating their business model follow". Similarly, Bucherer *et al.* (2012) identified strong similarities in the high-level phases between product and business model innovations. For this reason, it is appropriate to consider the BMI and innovation models together from the literature review to derive the critical BMI process stages.

The critical process stages were identified by analysing the BMI and innovation frameworks in literature, after which the prominent and popular stages were subjectively chosen and included in Table 4.2 on the following page. The occurrence of these stages within the six BMI and three innovation frameworks were then marked. Moreover, descriptive names were given for the critical stages that reflect the various framework stage descriptions given by their respective authors. The blue and green fill in Table 4.2, separates the BMI and innovation models respectively.

The identified stages are sequentially and briefly summarised in the list at the top of page 83, to give more context to Table 4.2. These BMI stages are guided by the Five Stage BMI Process by Osterwalder & Pigneur (2010), due to its high popularity in literature. The eight critical stages identified, will be used as a design guideline within Chapter 5 to validate their sequence. This will assist the initial design of the framework in Chapter 6 by ensuring that the framework's main stages and sequence are suitable.

Table 4.2: Cross sectional analysis of the critical BMI and innovation process stages

	Source	Lindgardt & Reeves (2011)	Osterwalder & Pigneur (2010)	Geterud & Tegern (2012)	Johnson (2010b)	Frankenberger *et al.* (2013)	Geissdoerfer *et al.* (2017)	Tidd *et al.* (2005)	Du Preez & Louw (2008)	Hansen & Birkinshaw (2007)
	Process Model Name	Circular BMI Process	Five Stage BMI Process	BMI Tool Framework	Repeatable BMI Process	4I-Framework	Cambridge BMI Process	Generic Innovation Process	Fugle Model	Innovation Value Chain
Critical Stages	Mobilise		X	X			X			
	Identify	X		X	X	X	X	X	X	X
	Understand	X	X	X		X	X		X	X
	Design	X	X		X	X	X	X	X	X
	Assess	X	X	X			X	X	X	X
	Implement	X	X		X	X	X	X	X	X
	Test	X	X		X	X	X		X	
	Scale, Manage & Adjust	X	X		X	X	X	X	X	

1. Mobilise: The BMI project is initiated by stating its mission and being permitted by the parent company's leadership to obtain a suitable team and resources.
2. Identify: Opportunities are identified.
3. Understand: Opportunities are understood.
4. Design: A concept is designed in line with the understood opportunities.
5. Assess: The concept is assessed.
6. Implement: The concept is implemented in its environment.
7. Test: The concept is tested in its environment.
8. Scale, Manage and Adjust: Lessons are learnt from the testing stage after which an iterative process takes place to adjust the concept accordingly. Additionally, the concept is scaled up in size and managed over time.

4.4 Chapter summary

Chapter 4 aimed to summarise the literature review and synthesise it. It provided a summary of Chapter 2 and 3, as well as summarising the most prominent BMI and innovation frameworks in Appendix E. This was followed by an overall synthesis of the literature review, where a comparison of the various structural business model components was made, and the lack of business model design guidelines was addressed. Finally, critical BMI process stages were identified which are to be validated in Chapter 5 as a design guideline, to set the base for the development of the white space BMI framework in Chapter 6.

The following objective, as stated in Section 1.3, is partially achieved in Chapter 4:

6. Identify key design guidelines to be considered when developing the various building blocks of a business model.

The following chapter, Chapter 5, describes the generation and validation process which the design guidelines went through, as well as presenting and analysing the validation results.

CHAPTER 5

DESIGN GUIDELINE GENERATION AND VALIDATION

Chapter 5 describes how the design guidelines were generated as well as the methodology, results and analysis which was executed to validate the design guidelines. The approach included first generating an initial set of guidelines from literature, after which industry and academic experts were used to validate, refine and possibly expand the set of guidelines. The validation process entailed a Delphi technique, containing a quantitative and qualitative survey. First an explanation of how the design guidelines were generated is given in Section 5.1, followed by a brief description of the theory behind validity in Section 5.2. Section 5.3 describes the methods that were used to collect the data, which is followed by Section 5.4 that describes how the survey was designed. Finally, the results are presented and analysed in Section 5.5, after which the chapter is summarised in Section 5.6. Figure 5.1 below illustrates the position of Chapter 5 in relation to the research study.

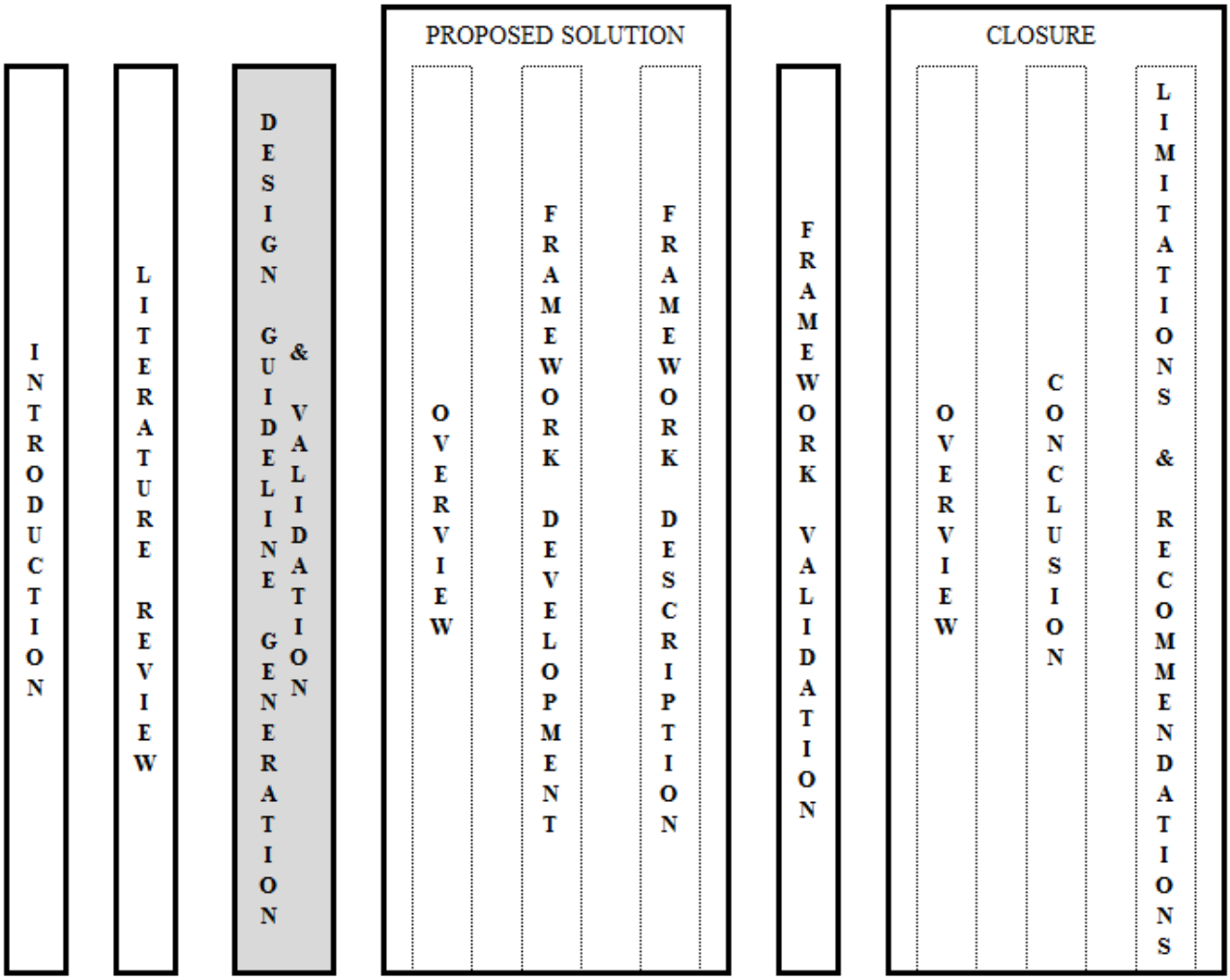


Figure 5.1: The position of Chapter 5 relative to the research study

5.1 Design guideline generation

Currently literature lacks a concrete detailed set of business model design guidelines. This research study aims to solve the lack of business model design guidelines in literature by generating component-specific design guidelines, which will go through a Delphi validation process.

The design guidelines were identified by analysing the literature review. Statements, questions, descriptions and considerations that were subjectively considered as important by the author, from his gained knowledge of the literature review, were converted into design guideline statements. These statements were then verified by searching in Google Scholar for prominent supporting authors that highlighted these guidelines as being significant. The initial set design guidelines that were initially generated can be seen in Appendix F. Each design guideline contains an abbreviated reference for tracking purposes. For example, $HL2_1$ means that it is the second High-Level (HL) design guideline in the set, while the subscript indicates it is the first set or draft of design guidelines generated.

The business model design guidelines are divided into the nine building blocks of the Business Model Canvas, due to its high popularity in literature, plus an extra category named 'High-Level Design Guidelines'. This extra High-Level category has been defined as followed by the author: "A generic design guideline that applies to the entire design process in general and which is not limited to a specific application, situation or component." The division of the design guidelines into the ten categories was subjectively done by analysing the wording of each design guideline.

A guideline that recurs in six of the ten categories is the generation of the backward income statement. As mentioned in Johnson's (2010b) Repeatable BMI Process in Section 2.3.3.4, after designing the CVP, the Profit Formula must be designed through a backward income statement in order generate the Revenue Model, Cost Structure and identify the Key Resources and Key Processes in his Four Box Business Model. Johnson's (2010b) Key Resources contain channels and partnerships among other things. Therefore, in terms of the Business Model Canvas, this means that the backward income statement can be used to identify the following six components: Distribution Channels, Revenue Model, Cost Structure, Key Resources, Key Activities and Key Partners.

Sections 5.2 to 5.5 aim to introduce and describe the validation process the generated design guidelines went through. The following section serves as the start of the validation chapter. The final validated guidelines, which focus mainly on the design of the components of a business model, will aim to act as a subtle guiding mechanism when developing the white space BMI framework.

5.2 Validation theory

According to Oosthuizen (2016), there are three kinds of important criteria when undertaking business research: reliability, replication and validity. To be able to reproduce the results through a comparable process, describes reliability. Replication refers to the author giving a clear enough description of the procedure so that the reader would be able to replicate the process. Hubley & Zumbo (1996) describe validity as being the simplest, yet far reaching of all measurement and testing concepts because without it any trial or measurement can essentially be deemed as worthless.

According to Ostelo & de Vet (2005), three different kinds of validity exist: construct validity, criterion validity and content validity:

1. Construct validity: This ensures the trial assesses the core planned concept. Construct validity was ensured by putting the measurement instrument and survey through a pilot testing

process. Special focus was given to the survey structure, survey sequence, and question content and phrasing.

2. Criterion validity: Assesses the extent to which the theoretical concept can precisely forecast the applicable features of the outcome. Criterion validity was enhanced by going through a two-round iterative Delphi process and by using experts.

3. Content validity: Oosthuizen (2016) defines content validity as, "it evaluates the degree to which an operationalisation represents the concept that the generalisation is applied to". Content validity was executed through the literature review, theoretical definitions and synthesis.

5.3 Method and approach to data collection

Welman & Kruger (2001) suggest that the following sections be included within a methodology section: target population and sample, data collection process, research tools and finally, the approach used for data analysis.

According to De Leeuw (1992), there are three main types of surveys that exist: face-to-face interviews, telephone interviews and mail questionnaires. The advantages and disadvantages of each method are illustrated in Table 5.1 below.

Data collection for the design guidelines was executed through a Delphi process, which lasted two rounds in the form of an online mailed questionnaire. The survey was tested before the time through a pilot study, which was then adjusted and refined.

Table 5.1: Advantages and disadvantages of three types of surveys

Survey Type	**Advantages**	**Disadvantages**
Mailed questionnaires	Big amounts of data can be collected. Simple construction. Short data capturing time. The participant cannot be easily influenced by the researcher.	Poor response percentage. Require correct address. Possible incorrect address. Participants are unwilling to release personal information.
Face-to-face interviews	Good response percentage. Can explain complex survey aspects. Easier to identify correct participant.	High costs. Require trained facilitators as interviewers. Increased operating time. The researcher could unintentionally influence the responses of the participants.
Telephone interviews	If compared to face-to-face interviews: Low cost, safe if participant is in a dangerous location, can be operated from a static location.	Biased and limited to those participants that only possess a phone number. The researcher could unintentionally influence the responses of the participants.

(Source: Babbie & Mouton, 2003; Anderson, 2010)

5.3.1 Research Methodology

Research methodology generally consists of two types of research: quantitative and qualitative research. Quantitative research is more concerned with numbers and the generation of statistics to verify whether a theory is true or not. Qualitative research is more flexible in nature and focuses on gaining a deeper understanding of a phenomena in terms of how people interpret it. Table 5.2 is inserted below to gain a better understanding of the differences of qualitative and quantitative research with regards to various aspects.

Table 5.2: Various aspects of quantitative and qualitative research

	Quantitative	**Qualitative**
Purpose of the research	To explain & predict	To describe & explain
	To confirm & validate	To explore & interpret
	To test theory	To build theory
Nature of the research	Known variables	Unknown variables
	Established guidelines	Flexible guidelines
	Static design	Emergent design
	Context-free	Context-bound
	Detached view	Personal view
Method of data collection	Standardized instruments	Observations & interviews
Analysis-type	Deductive analysis	Inductive analysis
Method of communicating findings	Numbers	Words
	Statistics,	Narratives,
	Scientific style	Literary style

(Source: Leedy & Ormord, 2001)

5.3.2 Mixed Method Research

The use of mixed method research has gained popularity in recent years (Zohrabi, 2013). According to Creswell (2008), mixed method research can be defined as, "both a method and methodology for conducting research that involves collecting, analysing, and integrating quantitative and qualitative research in a single study or a longitudinal program of inquiry". The use of mixed method research results in greater reliability, interpretation and validity of data (Abowitz & Toole, 2009).

Mixed method research was utilised within the design guideline surveys by using a closed-ended Likert scale question and by supplying the participant with an opportunity to comment on their answer through open-ended questions. Zohrabi (2013) highly recommends the combination of open-ended and closed-ended questions within mixed method questionnaires because they complement one another by covering each other's weaknesses. Greene (2008) provides the following four objectives for which mixed methods can be used for: development, complimentary, initiation and expansion. The design guideline survey used mixed method research to achieve these four objectives as explained in Table 5.3 below which overlaps to the following page.

Table 5.3: Mixed method research motivation

Objective	**Dissertation motivation**
Development	The design guideline validation, in particular the high-level design guidelines, served to assist the development of the proposed framework.
Complimentary	Qualitative and quantitative research complement one another and was therefore both utilized to tap into different validation aspects.
Initiation	The design guideline validation initiated topics that were considered within the framework development.

Expansion	The design guideline validation, in particular the high-level design guidelines, acted as a starting point from which the author could then expand on to develop the proposed framework.

5.3.3 Study Type: Delphi Method

The Delphi technique is a popular validation method that has been used in numerous industries including the business and engineering sectors. Skulmoski *et al.* (2007) define the Delphi technique as, "an iterative process used to collect and distil the judgments of experts using a series of questionnaires interspersed with feedback". Delbecq *et al.* (1975) state the Delphi method can be used to achieve the following five objectives:

1. To determine or generate various programme options.
2. To investigate or reveal hidden assumptions or information from which diverse conclusions can be made.
3. To obtain information which could result in consensus being reached from the participant group.
4. To correlate informed answers that span from a wide range of research domains.
5. To inform and educate a group on the topic being studied.

Every questionnaire, which is generated to concentrate on the problem at hand, depends on the outcome of the previous iteration. According to Ludwig (1997), the Delphi technique is stopped once a predetermined level of consensus has been reached or no new additional information has been obtained.

Linstone & Turoff (1975) stated that the Delphi method can be used to assist in the assembly of models, while Rowe & Wright (1999) suggested that it could also be used as a tool involving verdicts, decision-making or forecasting. Rowe & Wright (1999) go on to provide the following four important features that must be present in a Delphi method:

1. Anonymity: The participants experience less pressure to express their true opinion due to their identity being anonymous.
2. Iteration: This allows for the participants to refine their feedback after taking into consideration the group feedback from the previous round.
3. Organised response: The facilitator must notify all participants of the responses that were given by other participants for all participants to refine their feedback responses.
4. Aggregation of statistics: This allows for the quantitative assessment of results.

Adler & Ziglio (1996) do however state that the Delphi method can be adjusted to suit the needs of a specific study. Skulmoski *et al.* (2007) state the following components must be considered to execute a successful Delphi method: methodology, initial questioning, expertise criteria, participation numbers and finally number of rounds. These components are explained in Table G1 in Appendix G. From the information provided in Section 5.3.3, it can be concluded that the Delphi method was a suitable and appropriate validation technique for this research study.

5.4 Survey design

Section 5.4 gives background and describes how the survey for the business model design guidelines were designed. Figure 5.2 below illustrates the sequence of the sections found within Section 5.4.

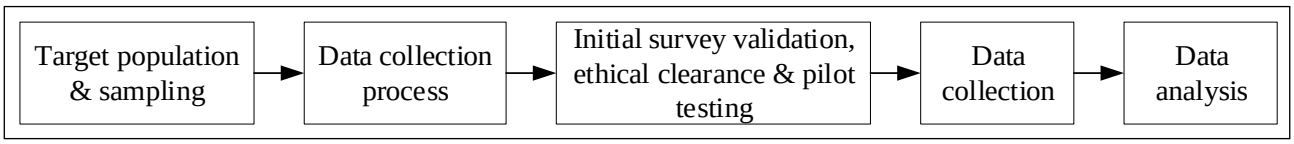


Figure 5.2: Survey design stages

5.4.1 Survey aim

The aim of the survey was to investigate and validate design guidelines for a business model. The survey aimed to follow a structured Delphi method in order to explore and verify design guidelines for the various components found within a conventional business model.

5.4.2 Target population and sampling

This section defines the concepts of target population and sampling. Furthermore, it is explained how they were considered for the validation process.

5.4.2.1 Target population

Lavrakas (2008) defines a target population for a survey as, "the entire set of units for which the survey data are to be used to make inferences. Thus, the target population defines those units for which the findings of the survey are meant to generalise". The target population for the design guidelines was individuals involved in business models specifically.

The survey was sent to individuals with industry or academic backgrounds in business models. These individuals were identified online by searching for expert companies or individuals that specialise in the following fields:

- Business models: The core focus of the survey was business models, especially the Business Model Canvas.
- Business model design or reconfiguration: As explained in 2.3.2, BMI consists of business model design or business model reconfiguration. Both BMI types involve taking into consideration the components of a business model and was therefore collectively chosen as one of the three required background fields.
- BMI: This background field was selected to take the high-level design guidelines into account.

5.4.2.2 Sampling

The Oxford dictionary defines *sampling* as, "an action where samples are taken from a population to be used for analysis". Thietart *et al.* (2001) suggest the following six components must be considered within a target population: 1) Population definition, 2) Select a sampling method, 3) Establish sample size, 4) Determine sampling frame, 5) Choose sample elements and 6) Data collection. The first five components are explained in the list at the top of the following page, while data collection is described in Section 5.4.2.

1. The business model design guidelines focus on the actual detailed high-level and component design of a business model. For this reason, the target population was defined by potential expert participants that have backgrounds in business models, business model design, business model reconfiguration or BMI.

2. Acharya *et al.* (2013) state that sampling consists of two main types: probability and non-probability sampling. Raman *et al*. (2008) state that judgemental sampling is a type of non-probability sampling in which the researcher selects the sample based on his/her judgement and previous knowledge. The author's judgement was used to contact suitable experts within the target population.

3. The Delphi method requires a total number of ten to fifteen participants (Skulmoski *et al.*, 2007). From a total of 37 participants which agreed to participate in the survey, twelve participants completed the first Delphi round, after which the same twelve participants completed the second Delphi round. Therefore, the sample size was achieved.

4. The validation concentrated on individuals with expertise in business models, business model design, business model reconfiguration or BMI.

5. All sample elements were wide-ranging and was applied to all sample participants.

5.4.3 Data Collection Process

The chosen research methodology for the design guidelines was a mixture of quantitative and qualitative research in the form of an online survey. Surveys were chosen due to the cost and time implications of the study, as well the research being of a theoretical and not an experimental nature.

5.4.3.1 Online Survey background

There has been a substantial increase in online and electronic communication over the past ten years (Horrigan, 2001). This has led to an increase in online research through the application of traditional methods (Andrews *et al*., 2003). The advancement of online survey software has resulted in online survey research becoming increasingly popular, faster and easier to use (Wright, 2005). Wright (2005) goes on to state that the advantages and disadvantages of online surveys must be considered when attempting to conduct an online survey, as can be seen below in Table 5.4.

Table 5.4: Advantages and disadvantages of online surveys.

Advantages	**Disadvantages**
Unique and global population access	Sampling difficulty
Reduced time	Individual access difficulty
Reduced cost	Junk mail perception
Convenient	Impersonal
Simple data input and assessment	Privacy and security issues
Flexibility	Possible lack of online experience

(Source: Wright, 2005; Evans & Marthur, 2005)

5.4.3.2 Research instrument development

According to Phillips (2015), Survey Monkey and Google Forms are two of the most popular and suitable online platforms to execute a survey on. The initial survey design was attempted on Survey Monkey, however certain issues were encountered. The free version of Survey Monkey only allowed

for a maximum of ten questions, does not make use of statistical software or allow the user to export the data to another program and additionally requires participants to log in before allowing them to complete the survey, all of which resulted in it not being chosen as the online platform of choice. However, Survey Monkey did provide the author with an introduction to the dynamics of online surveys.

The author possesses a Google account and therefore Google Forms was the next logical option. Google Forms is entirely free and allows the user to create an unlimited amount of surveys, allows a maximum of 1000 participants and provides the facilitator with the statistical data and exportation options to Microsoft Excel. Additionally, the participants can complete the survey immediately without the requirement of logging in or having a Google account. The survey made use of multiple choice questions, drop-down menus, matrixes and comment sections, all features which Google Forms contained. For the above reasons Google Forms was the chosen online survey platform for both Delphi rounds.

5.4.3.3 Likert Scale

Allen & Seaman (2007) describe the basics of the Likert Scale as the following: "Likert scales were developed in 1932 as the familiar five-point bipolar response that most people are familiar with today. These scales range from a group of categories-least to most-asking people to indicate how much they agree or disagree, approve or disapprove, or believe to be true or false." They go on to state that although no wrong way exists on how to construct a Likert scale, the most important consideration is that at least five response categories must usually be included. Therefore, a five-option Likert scale was chosen for this study.

5.4.3.4 Survey length

The survey had to be constructed in a logical sequence, while balancing the survey accuracy and reliability with an appropriate enough length so that participants would be willing to participate. The survey for the first Delphi round was initially too short in length, consisting of twelve questions, which would have been insufficient in terms of the reliability and accuracy of the study. The survey was made longer to a final total of 49 questions. This number was reduced to 21 questions for the second Delphi round, to entice the first-round participants to partake again.

5.4.4 Initial survey validation, ethical clearance and pilot testing

This section describes the draft process the survey went through to obtain the final first round survey.

5.4.4.1 Initial survey validation

The first survey draft was sent to the author's supervisor for assessment and revision purposes. The issues that arose were the following: 1) The survey was too short, 2) A generic demographic and background questioning section of the participant should be included, 3) Incorrect word choice and sentence structure within questions and headings. Corrections were made accordingly, after which a second draft was generated.

5.4.4.2 Ethical Clearance

The second survey draft was submitted to the Research Ethics Committee (REC) of Stellenbosch University along with an extensive online application. The REC approved the ethical process and

deemed that no changes had to be made to the application or survey. The Faculty Ethics Screening Committee (FESC) classified the survey and application as low risk, which meant that data collection could commence with immediate effect. Institutional permission was received from every participant through a written consent form.

5.4.4.3 Pilot testing

According to Litwin (1995), the pilot testing of surveys is an important stage in survey development because it allows the facilitator to correct small errors before the final survey is sent out. The second survey draft was sent out to four participants in total: one CEO, one industrial engineering master's student and two undergraduate students.

The aim of the pilot test was to identify and correct any final errors within the validation through the pilot test participants. It was not a requirement that the participants had to have a background in business models. The participants were required to complete the survey and record any possible errors which they encountered, as well as the time it took them to complete it. The average time for completion was 20 minutes and the following errors were identified: 1) The principle industry list of the organisation was not detailed enough - for example, 'non-profit' and 'I am currently not employed' was not initially included and 2) Two pictures were found to be unclear.

The survey was refined and corrected on Google Forms, which then led to the third and final survey.

5.4.5 Data collection

The data collection process consisted of two Delphi rounds in the form of an online survey that was emailed to the participants. Consensus was reached after the second round. The business model design guideline validation process is illustrated below in Figure 5.3.

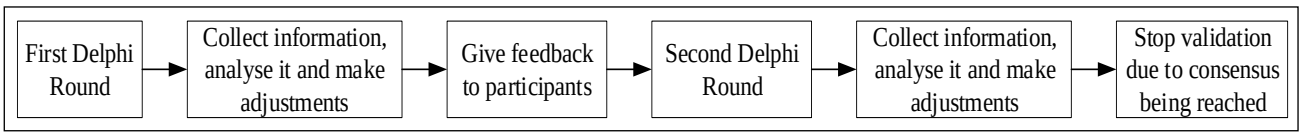


Figure 5.3: Data collection process as it occurred

5.4.5.1 Delphi Round 1

Individuals and organisations with backgrounds and expertise in business models were identified online through Google to gain potential participants. These potential participants were then emailed or telephoned to request whether they would be willing to participate in the Delphi survey process and fill out a written consent form. Those respondents that agreed were then sent an explanatory email containing a summary document and a link to the survey. The invitation email, written consent form, explanatory email and summary document, as was seen by the participants, can be seen in Appendix H in Sections H.1, H.2, H.3 and H.4 respectively.

As was explained in Appendix G, the required homogenous population size for a Delphi method is between ten and fifteen people. A total of 84 emails were sent out, after which 37 emails responded that they would be willing to participate in the survey. Twelve participants managed to complete the survey in the first round. Therefore, the first round's acceptance response rate was 44% and the completion rate from those which accepted was 32%. The first survey was open for completion for two weeks: from the 18th of May 2017 to the 1st of June 2017.

The survey generated quantitative and qualitative data for all ten design guideline categories. Quantitative data was collected in the form a closed-ended five-point Likert scale question containing

the following scale: 1 = Strongly Disagree; 2 = Disagree; 3 = Undecided; 4 = Agree; 5 = Strongly Agree, as well as a *Yes* or *No* question regarding whether improvements were necessary or not. Qualitative data was collected by two open-ended questions in which participants could state and describe their disagreements and suggested improvements.

Data was collected by downloading a Microsoft Excel document that Google Forms automatically generated. The data was then assembled into a neater and more organised format after which it was then analysed. Consensus was not clearly obtained within the first round. Appropriate feedback was given to all twelve participants after which they were then invited to participate in a second round.

5.4.5.2 Delphi Round 2

The second-round survey validated the second set or draft of all ten design guideline categories, with one quantitative and qualitative question each. The same closed-ended five-point Likert scale question as in the first round was used, followed by an open-ended question where the participants could state their concerns and/or suggested recommendations.

The second survey was open for completion for three weeks: from 26 June 2017 – 17 July 2017. All twelve participants completed the questionnaire even though some exceeded the deadline. The second round's response rate was therefore 100% and the entire Delphi completion rate from the initial invitation email was 14%.

Data was again downloaded through the Google Forms' Microsoft Excel document after which it was organised and analysed in the same way as the first round. The second-round analyses showed that consensus was reached and therefore the design guideline validation was stopped.

5.4.6 Data Analysis

The Cambridge dictionary defines data analysis as (Cambridge, 2017), being "the process of examining information, especially using a computer, to find something out, or to help with making decisions." Albright *et al*. (2010) states that data analysis is particularly useful to guide business decisions when presented with qualitative and/or quantitative data.

Data analysis in a Delphi study can entail analysing both qualitative and quantitative data (Hsu & Sandford, 2007). Qualitative data was assessed through a basic thematic analysis, while the quantitative data was analysed using descriptive statistics. Section 5.4.5.1 briefly describes a thematic analysis, while Sections 5.4.5.2 and 5.4.5.3 describe how the quantitative data was analysed.

Prof Nel, from Stellenbosch University's Centre of Statistical Consultation, was consulted with the generated data (Nel, personal communication, 14 August 2017). He gave advice as to which statistical techniques should be used and helped to analyse and interpret the data. The statistical methods and criteria used in this dissertation are in line with Prof Nel's recommendations.

5.4.6.1 Thematic Analysis

Newcomer *et al.* (2015) defined qualitative analysis as, "making sense of relevant data gathered from sources such as interviews, on-site observations, and documents and then responsibly presenting what the data revealed." Qualitative procedures share a common focus in that they aim to obtain an understanding of a specific phenomenon from the viewpoint of those that are experiencing it (Vaismoradi *et al*., 2013). Lacey & Duff (2001) state that qualitative research is a subjective and interpretive activity, which the researcher is closely involved in.

A thematic analysis is one of the most common types of qualitative research techniques (Sgier, 2012). Aronson (1995) describes a thematic analysis as identifying themes or patterns within a set of qualitative data. A basic, subjective and interpretive thematic analysis was adopted by this study by identifying the main themes within each generated comment. These themes were then converted into a solution in the form of a new or altered design guideline that addresses and solves the participant's concerns or recommendations, in the comment directly.

5.4.6.2 Descriptive Statistics

According to Heiko (2012), Delphi studies often use descriptive statistics to motivate consensus. Trochim (2006) states that descriptive statistics describe the simple aspects of data within a quantitative study by supplying basic summaries of the sample data and its measures. Descriptive statistics were used to describe the Likert scale from both Delphi rounds.

Consensus has not been reached on which set of descriptive statistics must be consistently used within a Delphi method (Yang, 2003). The most common statistical techniques used are measures of central tendency such as mean, median and mode, as well as levels of dispersion such as standard deviation and interquartile range (IQR) (Latif *et al.*, 2016; Hsu & Sandford, 2007).

Alternatively, Shah & Kalaian (2009) found that the coefficient of variation (CV) is the best-suited level of dispersion for a Delphi method (Yang, 2003). Latif *et al.* (2016) go on to state that the median is the most popular and prominent measure to consider when using Likert scales. Jacobs (1997) supported this by finding the median to be the favoured technique for Likert scales. Murphy *et al.* (1998) suggest that the median and IQR should be used instead of the median and standard deviation, due the former being more robust. Finally, Heiko (2012) suggests an additional consensus measurement called 'certain level of agreement', which has been used in many Delphi studies due to its meaningful contribution when Likert scales are used.

Heiko (2012) stated that the measures of central tendency are usually used alongside with one or more levels of dispersion. To be thorough and wide-ranging, this study adopted this concept by including the 'certain level of agreement' measurement and all three measures of central tendency, namely mean, median and mode. Along with the three levels of central tendency, the three levels of dispersion were also included, namely standard deviation, CV and IQR. These choices of measures were supported by Stellenbosch University's Centre of Statistical Consultation.

5.4.6.3 Statistical Methods and Consensus

The Delphi technique can be stopped once little or no new information has been obtained, or when a predetermined level of consensus has been reached (Delbec *et al.*, 1975). Heiko (2012) states that although consensus is not the core focus of Delphi research, it remains an important measurement that must be considered.

The Oxford dictionary defines the term *consensus* as "a general agreement". Consensus does however remain as one of the most argumentative concepts in Delphi research with various opinions on its level of measurement (Yang, 2003). Due to the current lack of standards, it is suggested that the researcher must define their consensus criteria beforehand (Heiko, 2012; Fink *et al.*, 1984).

Certain level of agreement

The certain level of agreement measures the percentage of participants that agree to a certain degree. Loughlin & Moore (1979) defined their consensus as, 51% of total agreement among participants. Seagle & Iverson (2001) stated in their study that "Consensus was achieved on an item if at least

60% of the respondents agreed". Finally, Putnam *et al.* (1995) defined certain level of agreement consensus if 80% or more participants chose the top 2 answer options (Strongly agree/agree) on a five-point Likert scale. Due to the latter being the stricter measure, it was chosen as the certain level of agreement conditions for consensus for this study.

Mean

Statistical mean can be defined as, the sum of all data points in a population divided by the total number of points. This is illustrated by Equation 3 below, where $\bar{x}$ represents the mean, x represents each value in the data set and n represents the number of values in the data set.

$$\bar{x} = \frac{\sum x}{n} \tag{3}$$

According to Heiko (2012), the calculation of the mean is only applicable for interval//ratio data. Shields *et al.* (1987) state the general understanding is that the Likert scale can be classified as interval data, and that outliers must be considered because they can influence the mean in an *unrealistic* manner. For this reason, it is often advised that the median should be the core measure of central tendency (Gordon *et al*., 2005; Armstrong, 2001). Nevertheless, it was advised that for the mean to indicate consensus on its own, it must be four or above on a five-point Likert scale (Nel, personal communication, 14 August 2017).

Median

The median can be described as, the middle data point in a population of numbers arranged in an ascending or descending order. According to Argyrous (2011), the median can be used for ranked data that are of the interval/ratio or ordinal type.

To achieve consensus, Green (1982) suggests that a minimum of 70% of participants within a Delphi study must select three or more on a four-point Likert Scale, while the median must be at least 3.25 or more. For a five-point Likert scale, Latif *et al.* (2016) used the median to indicate the importance level. A median value of four or more indicated very high importance, while a median value of 3.5 or less indicated a low importance level. It was advised that the median must be four or above on a five-point Likert scale to indicate consensus (Nel, personal communication, 14 August 2017).

Mode

According to Microsoft Excel, mode can be defined as the most frequently occurring, or recurring, value in a set of data. According to Argyrous (2011), the mode can be used for all levels of measurement, although it is not particularly useful with scales that contain a high number of values. In terms of consensus, it was advised that the mode must either be four or above on a five-point Likert scale (Nel, personal communication, 14 August 2017).

Standard Deviation

Standard deviation is the degree that a set of data disperses around the mean. The formula for standard deviation is illustrated below in Equation 4, where s represents the standard deviation of a sample.

$$s = \sqrt{\frac{\sum(x - \bar{x})^2}{n-1}} \tag{4}$$

Using a probability of 90% and its corresponding z-score of 1.645, West & Cannon (1988) as well as Rogers & Lopez (2002) suggested that consensus was reached if the selected answers fell within the range of mean ± 1.645 standard deviations. It was advised that 80% of answers should fall within this range to make it conservative (Nel, personal communication, 14 August 2017).

Coefficient of Variation

Latif *et al.* (2016) state that *coefficient of variation* (CV) is a "statistical measure of the deviation of a variable from its mean". It is stated as a percentage by dividing the standard deviation by the mean, as illustrated in Equation 5 at the top of the following page. Heiko (2012) stated the CV has been widely used in Delphi studies, due to its capability to directly compare answers from rounds.

$$CV = \frac{s}{\bar{x}} \times 100 \quad (5)$$

According to English & Kernan (1976), the CV must abide by the following rules illustrated in Table 5.5 below to determine whether consensus has been reached or not.

Table 5.5: Rules of determining consensus using the CV

CV Interval (%)	Consensus ruling
$0 < CV \leq 50$	Consensus has been reached. Additional round not needed.
$50 < CV \leq 80$	Below adequate degree of consensus. Consider an additional round.
$CV > 80$	Unacceptable degree of consensus. Additional round is compulsory.

(Source: English & Kernan, 1976)

Interquartile Range

According to Heiko (2012), the *interquartile range* (IQR) is a "frequently used measure in Delphi studies, and it is generally accepted as an objective and rigorous way of determining consensus". Sekaran & Bougie (2016) describes the IQR as measuring the degree that a data set disperses for the median while consisting of the middle 50% of the data points. This concept is illustrated below in Figure 5.4.

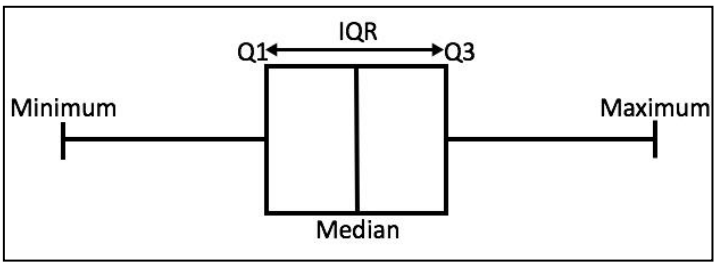


Figure 5.4: The IQR is equal to Q3 minus Q1

From the above description, it is concluded that, an IQR that is lower than one indicates that an amount greater than 50% of answers are situated within one point of a Likert scale (De Vet *et al.*, 2004). Consensus can be accepted if the IQR is less than one on a four or five-point Likert scale (Rayens, 2000; Raskin, 1994). Murphy *et al.* (1998) suggest that the median and IQR should be used instead of the median and standard deviation, due the former being more robust.

Table 5.6 on the following page, summarises the different statistical measures and their relative consensus criteria that were used to analyse both Delphi rounds.

5.4.7 Survey Questions

The first-round survey consisted of a total of 49 questions and twelve sections (which included closed and open-ended questions). Depending on the answer of the closed-ended Likert scale question, not all questions were compulsory. The sections and individual questions found within both Delphi round surveys are explained in Appendix I in Table I1 and I2. Screen shots of the final first round survey, as was seen by the participants, can be seen in Appendix J. On the actual online survey, the sections were neatly separated from another and the participants had to click 'NEXT' to go to the next section.

The sequence of the nine building blocks in both surveys followed the sequence of their descriptions as described by Osterwalder & Pigneur (2010). The following section presents and analyses the quantitative and qualitative results of both Delphi rounds.

Table 5.6: Statistical measures and their associated consensus criteria that were used to analyse the quantitative data

Statistical measure	**Description**	**Consensus criteria**
Certain level of agreement	Percentage of agreement by participants	80% or more total agreement between the top 2 Likert scale measures: 4. Agree and 5. Strongly Agree.
Mean	Also known as the average, it is calculated by dividing the sum of all data points by the number of data points.	$\bar{x} \geq 4$. Agree
Median	The value that falls in the middle of a data set with 50% of the data points above and below it.	Median ≥ 4. Agree
Mode	The most frequently recurring value in a data set.	Mode must either be: 4. Agree or 5. Strongly Agree.
Standard Deviation	The measure of dispersion around the mean.	80% of answers must fall within: $\bar{x} \pm (1.645 \times s)$
Coefficient of Variation (CV)	The ratio of standard deviation to the mean.	$0 < CV \leq 50$ - Consensus has been reached.
		$50 < CV \leq 80$ - Below average of agreement. Consider an additional round.
		$CV > 80$ - Unsatisfactorily degree of consensus. Compulsory to perform an additional round.
Interquartile Range (IQR)	Measure of statistical dispersion which contains the middle 50% of values in a data set.	$IQR \leq 1$

5.5 Results

The quantitative and qualitative data generated from both Delphi rounds were analysed using descriptive statistics and a basic but direct thematic analysis respectively. It is important to note that although the median and IQR are the popular quantitative statistical measures when it comes to Delphi rounds containing Likert scales, this study purposely performed a more in-depth statistical analysis by performing the following additional tests: level of agreement, mean, mode, standard deviation and CV. Section 5.5 presents the relevant analysis and discusses the results from each question within both Delphi round surveys.

5.5.1 Delphi Round 1

Section 5.5.1 presents and analyses the demographic and background information, as well as the data obtained from the closed-ended and open-ended questions from the first Delphi round.

5.5.1.1 Demographic and background information

The second section of the survey aimed to collect all the necessary demographic and background information of the participants. The data of the obtained background information from survey questions two to nine, analysed in Table 5.7 on the following page, can be seen in Appendix K.

Table 5.7: Participant demographic and background analysis from Appendix K

Question Number	Analysis
2	Participant names were blacked out to keep their anonymity. Each participant was allocated a number for tracking and reference purposes.
3	Seven participants indicated industry job descriptions such as being a director, CIO, manager or partner. Three participants indicated holding industry and high academic qualifications simultaneously while two participants purely held academic positions. Therefore the group of participants were slightly more industry than academically orientated. These conclusions are supported by the participants online profile information.
4	The group of twelve participants all held strong job level positions. 58% of the participants indicated being in an Owner/Executive/C-Level job position. The other 25% and 17% of the participants indicated having senior and middle management job levels respectively.
5	The majority of the group indicated that they were situated within another industry than those listed in survey. 50% of the participants were local while the other 50% were international. Participant 5 neglected to answer question five.
6	All the participants that chose "Other" in question five indicated that they were in a consultancy/advisory industry.
7	Eleven out of the twelve participants (92%) indicated that they have been involved in some sort of business model design or configuration process.
8	A common theme from the participant responses was that they have specifically assisted third parties in the design area.
9	Participants were mostly experienced within the area of 'Business Models', followed by 'BMI' and then 'Business Model Design and Reconfiguration'.

From the demographic and background analysis it can be concluded that the group of participants were suitable experts to validate the design guidelines of a business model.

5.5.1.2 Closed-ended Likert scale question analysis

Do you agree or disagree with the _____ design guidelines shown in the above table?

The Likert scale question was included to understand the degree to which the participants agreed or disagreed with the set of guidelines for each of the ten categories. Table 5.8 on the following page illustrates each participant's Likert scale answer for each of the ten categories. Additionally, Table 5.8 illustrates the calculated statistical measures for each of the ten categories and their degree of consensus based on the consensus criteria stipulated in Table 5.6. The underscore in the above closed-ended question takes the place of the ten design guideline categories.

Five of the design guideline categories (50%) passed the strict level of agreement criteria. The Distribution Channels and Key Activities were particularly weak with a total of six and five participants giving answer choices of below four to the two components respectively. The mean was fairly in line with the Level of Agreement, with the Distribution Channels and Key Activities having the two lowest mean figures. The Value Proposition resulted in unsatisfactory consensus in the mean only, highlighting the fact of how an outlier such as the answer given by Participant 10, can strongly affect the mean value with a total of twelve participants.

The median, being one of the more important central tendency statistical measures, indicated that consensus was reached for all categories except for the Distribution Channels, which had a median value 3.50. The mode on the other hand indicated that '4. Agree' was the most recurring answer choice of all ten categories, indicating that consensus was reached from the mode's perspective.

Table 5.8: Delphi Round 1 Likert scale analysis

	High Level	Customer Segment	Value Proposition	Distribution Channels	Customer Relationships	Revenue Streams	Key Resources	Key Activities	Key Partnerships	Cost Structure
Participant 1	3	3	3	4	3	4	4	3	4	4
Participant 2	4	4	4	4	4	4	5	5	5	4
Participant 3	5	5	4	2	5	4	2	2	2	4
Participant 4	4	5	5	5	5	5	5	5	5	5
Participant 5	4	4	4	4	4	4	4	4	4	4
Participant 6	4	4	4	2	4	4	4	4	5	3
Participant 7	4	4	4	4	4	4	4	4	4	4
Participant 8	4	4	4	3	4	3	3	3	3	3
Participant 9	4	4	4	2	4	4	2	2	2	2
Participant 10	4	4	2	3	4	4	4	4	4	4
Participant 11	5	5	5	5	5	5	5	5	5	5
Participant 12	4	4	4	1	4	4	2	2	2	2
Level of Agreement (%)	91.67	91.67	83.33	50.00	91.67	91.67	66.67	58.33	66.67	66.67
Mean	4.08	4.17	3.92	3.25	4.17	4.08	3.67	3.58	3.75	3.67
Median	4.00	4.00	4.00	3.50	4.00	4.00	4.00	4.00	4.00	4.00
Mode	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Standard Deviation	0.51	0.58	0.79	1.29	0.58	0.51	1.15	1.16	1.22	0.98
CV (%)	12.61	13.86	20.25	39.63	13.86	12.61	31.49	32.50	32.41	26.86
IQR	0	0.75	0	2	0.75	0	2.5	2.5	2.75	1
Five Point Likert Scale Ranking						1	2	3	4	5
Ranking Colour										
Consensus Colour						Satisfactory Consensus			Unsatisfactory Consensus	

The standard deviation must be analysed in conjunction with the mean. According to Prof Nel, the confidence interval will show whether consensus was reached amongst the participants themselves (Nel, personal communication, 14 August 2017). Table 5.9 below illustrates the percentage of answers that fell within the range of the following confidence interval: $\bar{x} \pm (1.645 \times s)$. Table 5.9 includes the ten categories, which have been abbreviated, and their relative upper limit (UL) and lower limit (LL) of the interval as well as the number (#) and percentage (%) of participant answers that fell within that range.

Table 5.9: Round 1 Consensus in terms of the confidence interval

	High Level	Cust. Segm.	Value Prop.	Distr. Chan.	Cust. Relat.	Rev. Str.	Key Res.	Key Act.	Key Partn.	Cost Struct.
UL	4.93	5.12	5.22	5.37	5.12	4.93	5.57	5.50	5.75	5.29
LL	3.24	3.22	2.61	1.13	3.22	3.24	1.77	1.67	1.75	2.05
#	9	12	11	11	11	9	12	12	12	10
%	75.7	100.0	91.7	91.7	91.7	75.0	100.0	100.0	100.0	83.3

From Table 5.9 two categories, namely High-Level and Revenue Streams, failed to achieve the required but very conservative 80% of participants' answers to fall within their confidence intervals. This is mainly due to their upper limits being lower than five, which lead to the exclusion of several '5. Strongly Agree' answers. Nevertheless, 75.7% and 75% can still be considered a respectable percentage.

The CV indicated that consensus was reached for all ten of the categories due to all their CV's being well below 50%. However, the IQR, which is the more important level of dispersion measure, indicated that four of the ten categories did not show satisfactory consensus because of their values being larger than one. This can be investigated further by considering the first and third quartiles, as illustrated below in Table 5.10.

Table 5.10: Consensus surrounding the IQR

	High Level	Cust. Segm.	ValueProp.	Distr.Chan.	Cust. Relat.	Rev. Str.	Key Res.	Key Act.	Key Partn.	Cost Struct.
Q1	4.00	4.00	4.00	2.00	4.00	4.00	2.25	2.25	2.25	3.00
Q3	4.00	4.75	4.00	4.00	4.75	4.00	4.75	4.75	5.00	4.00
IQR	0.00	0.75	0.00	2.00	0.75	0.00	2.50	2.50	2.75	1.00

Table 5.10 shows that the Distributions Channel's, Key Resource's, Key Activities' and Key Partnerships' Q1's were relatively lower than the other ten categories leading to their IQR's being larger. Cost Structure's IQR fell within the consensus criteria, however it was borderline at a value of one.

From the analysis provided in Section 5.5.1.2, five of the categories, namely Distributions Channels, Key Resources, Key Activities and Key Partnerships were not able to prove convincingly that satisfactory consensus was achieved. This was mainly due to their Level of Agreement, mean and IQR's failing their successful consensus criteria. The next step required the author to investigate further, with a special focus on the mentioned four categories, by consulting the qualitative data.

5.5.1.3 Open-ended disagreement question analysis

If any, please separately list the _____ design guidelines you do not agree with and motivate/explain why next to each listed guideline. This is compulsory if answer option 1, 2 or 3 was chosen.

A qualitative assessment was necessary to understand the reasoning behind the quantitative data. This was done by performing a basic thematic analysis on each comment that was interpretive and subjective by nature, by addressing each comment directly with a solution. The generated participant comments and their solutions from the open-ended disagreement question for each of the ten categories, can be seen in Appendix L in Tables L1 to L10.

Certain solutions have been colour coded to highlight the type of solution generated. Guidelines that have been changed in terms of their wording have been highlighted with yellow, with the new and additional words in italics. Guidelines that have been completely newly generated are highlighted in green. Other general solution comments have no highlighting.

High-Level

All three participants' comments focused on guideline $HL1_1$ in Table L1. The overall concern was about the flexibility of the guideline itself. Participant 1 commented on this issue by stating: "There is an inherent contradiction between a (over) structured approach, versus the potential of experimenting in the free space". Participant 12 agrees who commented "The issue is in the linear flow." Therefore, guideline $HL1_1$ was altered accordingly, to incorporate flexibility.

Customer Segments

Like the High-Level category, Participant 1 addressed the issue of flexibility again but more in terms of the design guidelines than the actual BMI process. Participant 9 and 12 on the other hand addressed the futuristic and goal considerations of the customer segments respectively in Table L2.

Value Proposition

Participant 1, 10 and 12 all addressed the concept of value in their comments within Table L3. While Participant 10 and 12's comments could be addressed directly, Participant 1 stated the following: "Also research and include value creation and value creation strategy guidelines."

Value creation literature was found by Smith & Colgate (2007), who identified four types of value that can be generated by firms, namely:

- Functional/Instrumental value: The degree to which the value proposition accomplishes a customer's goals as well as the attributes of the value proposition.
- Experiential/Hedonic value: The degree to which the value proposition generates feelings, emotions and experiences for the customer.
- Symbolic/Expressive value: The degree of psychological meaning the customer attaches to the value proposition.
- Cost/Sacrifice value: The total financial and non-financial cost the customer pays. Financial costs can entail research, buying, obtaining, maintenance, switching and opportunity costs. Non-financial costs can include things such as emotional, social, psychological, relationship and time costs.

Value creation strategy literature was found by O'Cass & Ngo (2011), who suggested that a firm's value creation strategy must consist of the following:

- Performance value: The actual performance of the value proposition's attributes.
- Pricing value: Whether the value proposition's price is fair and whether the benefits of the value proposition outweighs its price in value.

- Relationship value: The degree to which the firm goes to generate a disturbance free customer experience.
- Co-creation value: This is generated when customer find it valuable to influence the business model in some way.

A new design guideline was generated from each of the value creation and value creation strategy lists.

Distribution Channels

Design guideline $DC1_1$ involving the backward income statement was a prominent area of concern for the participants in Table L4. Participant 9 stated that "The backward income statement should not be the starting point in a business model design project." This was supported by Participant 12 who commented "identifying distribution channels through an income statement makes little sense beyond commercial viability - that's a testing / validation question. Coming up with distribution channel possibilities is an ideation that needs to begin outside the realm of financial statements." This was a strong recurring theme in all the components involving the backward income statement, namely: Distribution Channels, Revenue Streams, Key Resources, Key Activities, Key Partnerships and Cost Structure.

To address this, it was decided that the backward income statement should be considered as a final recognition and validation tool in the Revenue Stream and Cost Structure building blocks. Thus, only once the other seven building blocks in the business model canvas have already been considered. Therefore, instead of the backward income statement serving as an initial identification tool as Johnson (2010b) suggests, it will rather serve as a recognition tool for all the considerations that have already been considered, while validating whether they are financially feasible.

Participant 8 provided a website that he/she wanted the author to consider for potential additional guidelines. The provided website was an in-depth description of Distribution Channels based on the Business Model Canvas. Important considerations were obtained that should be considered when selecting a Distribution Channel. The channel phases and types, which were addressed in detail on the website, were also included in new guidelines.

Participant 10 suggested that the Pareto principle be incorporated. According to Sanders (1987), Vilfredo Pareto was an economist in the nineteenth-century who observed that 80% of all wealth was concentrated in 20% of the population, which serves as the base for what is now known as the 80/20 rule or Pareto Principle. It was decided to move its solution to the Customer Segment building block, which if executed will have a direct influence on the Distribution Channels.

Customer Relationships

Participants 1, 9 and 12 addressed issues pertaining to customer intimacy, cost and customer expectations in Table L5. All three issues were addressed with appropriate solutions.

Revenue Streams

The issue surrounding the backward income statement was addressed only by Participants 1 and 9, indicating that the group of participants tend to agree more with its placement within the Revenue Stream category. This theory is supported by the Revenue Streams category passing all the consensus criteria in Table 5.6. Participant 9 mentioned that the backward income does not seem to fit and that he/she uses "the business model canvas for designing the business model concept and combine(s) it with a business case". The new solution to the backward income statement performs a similar job and therefore it was used as the solution to Participant 9's comment in Table L6.

Participant 8 on the other hand was concerned with the of lack guidelines by stating “looks like there are only a few options to pick from – revenue stream design needs to be approached more creatively”. Three new guidelines were generated in line with their comments as a solution.

Key Resources
All the participants that commented at this point highlighted the backward income statement again in Table L7. The solution to the backward income statement can be supported by Participant 1’s statement “backward income statement is downstream”, which was reinforced by Participant 8’s comment “financials come last not first - you diverge before you converge if you want to end up with an innovative design”.

Key Activities
Participants 1, 3, 8 and 12 brought up the issue of the backward income statement once again. Participant 9 questioned the fact of support activities in guideline $KA2_1$ stating that “I never include support activities in a business model, since they are not unique, every company has to do HRM and administration.” It was decided that support activities should nonetheless still be considered when designing a business model. To accommodate Participant 9’s comment it was decided to add in the following at the end of guideline $KA2_1$: “Choose then those activities that are core to the business model”, as shown in Table L8.

Key Partnerships
The same participants as in the Key Activities highlighted the backward income statement as being problematic. Participant 9 highlighted three important themes that were directly addressed with solutions in Table L9: 1) The rationale and purpose of a partnership, 2) The value exchange that takes place between the business model and the partner and 3) The important influence a partner can have on the rest of the business.

Cost Structure
Participants 1, 3, 8, 10 and 12 reiterated their concern about the backward income statement.

5.5.1.4 Yes/No question analysis

Are there any other critical _____ design guidelines which you feel must be added, or improvements which should be made? This must be especially considered if option 1, 2 or 3 was chosen.

The Yes/No question aimed to capture quantitative data regarding additional improvements the participants felt should be made to the first round of design guidelines. Table 5.11 on the following page illustrates all twelve participants’ answers for each of the ten categories. Participant 7 and 8 did not answer (DNA) in several categories. However, every time this occurred no comment was given, and therefore a DNA was assumed to be a No.

The group of participants felt that the categories that required the most improvement are the Value Proposition, Distribution Channels, Customer Relationships and Revenue Streams. This does not fall directly in line with the consensus analysis performed on the Likert scale question, where the Value Proposition, Customer Relationships and Revenue Streams, performed well. This can be due to the participants that in general do agree with the first round of guidelines but feel that additional guidelines can be added.

Table 5.11: Yes/No answers for each of the ten design guideline categories

	High Level	**Customer Segment**	**Value Proposition**	**Distribution Channels**	**Customer Relationships**	**Revenue Streams**	**Key Resources**	**Key Activities**	**Key Partnerships**	**Cost Structure**
Participant 1	No	No	No	No	No	No	No	No	No	No
Participant 2	No	No	No	No	No	No	No	No	No	No
Participant 3	No	No	Yes	Yes	No	Yes	No	No	No	No
Participant 4	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	No
Participant 5	No	No	No	No	No	No	No	No	No	No
Participant 6	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Participant 7	DNA	Yes	Yes	No	No	No	Yes	No	No	No
Participant 8	No	DNA	DNA	Yes	DNA	Yes	DNA	DNA	DNA	DNA
Participant 9	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Participant 10	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No
Participant 11	No	No	No	No	No	No	No	No	No	No
Participant 12	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes Percentage (%)	33	33	58.33	50.00	41.67	50.00	33	33	16.67	16.67

Five Point Likert Scale Ranking	Yes	No	DNA
Ranking Colour			

5.5.1.5 Improvement motivation question

If "Yes" was chosen, please list separately each _____ design guideline in a concrete design statement and then motivate/explain next to each added/improved design guideline the reason for its addition or improvement.

An identical interpretive and subjective thematic analysis was performed on the improvement question, as in Section 5.5.1.3. Similarly, the same colour coding scheme was used. The comments and solutions for the improvement question can be seen in Appendix M. Each of the ten categories and their solutions are illustrated in Tables M1 to M10.

High-Level
Participant 4 stated "Define what a business model is first and foremost." Participant 9 stated "The business model design process should not only be linked to the business strategy but also to the mission & vision of the company since they provide the justification and reason (the why) for the design process." Suitable new guidelines were generated to solve their improvement suggestions in Table M1.

Customer Segments
Participant 4 stated "For every Job to be Done, customers use hiring criteria to choose a solution. Hence knowing this is important while segmenting customers". Participant 9 commented "Make sure you really understand your customer's business, life, worries and needs." New guidelines were generated in line with both comments in Table M2.

Value Proposition
Participant 3 stressed that the functional, emotional and social aspects must be incorporated into guideline $VP1_1$. Additionally, Participant 7 commented "consider the customer's problem and use user-centered design thinking to solve that problem." Both participant's feedback was considered to alter guideline $VP1_1$ accordingly. Participant 9 stated on the other hand "Show how your value proposition differs from competing propositions", from which a new guideline was generated. Other feedback and solutions can be seen in Table M3.

Distribution Channels
The need to address innovation was mentioned twice by Participant 3 in the Distribution Channel and Revenue Stream categories who stated: "The design guidelines should address the need of innovation in the distribution channel and other components" in Table M4 and "The design guidelines should cater for innovation in revenue streams as well as in each of the other blocks as well" in Table M6. This was therefore treated as an important consideration to ensure that an innovative business model is designed.

The lack of apparent innovation was addressed by an article published by the global management consulting firm Mckinsey. De Jong & van Dijk (2015) suggest a new approach to BMI through a five-step process, which is illustrated and explained at the top of the following page in Figure 5.5. To generate innovation specifically at a building block level, the five steps are applied for each of the nine building blocks in the Business Model Canvas as was therefore generated as a High-Level design guideline.

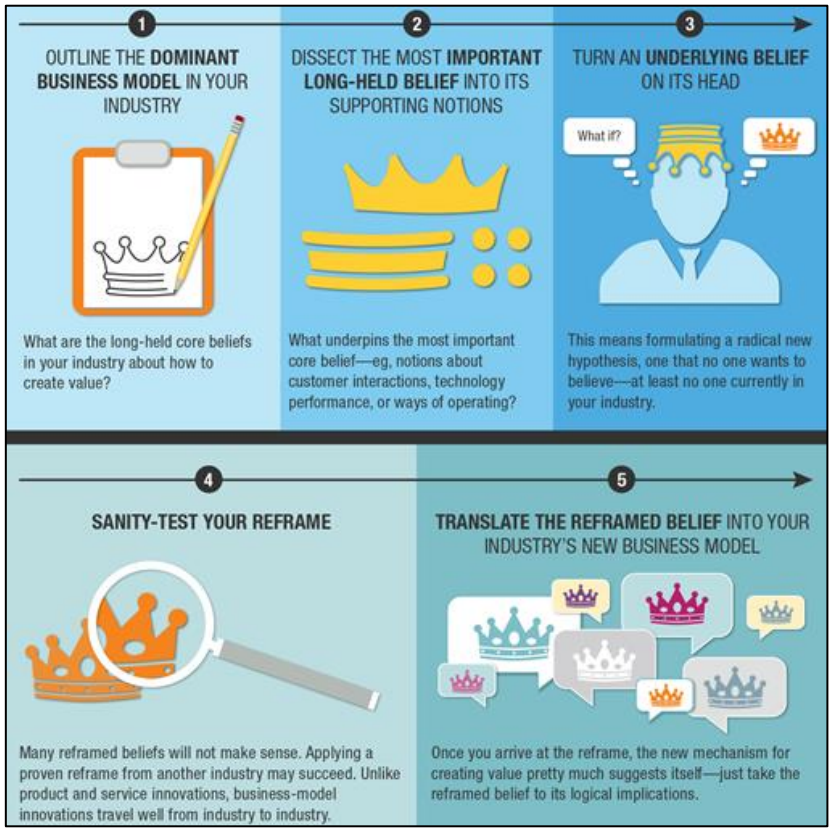


Figure 5.5: Five steps to BMI
(Source: De Jong and van Dijk, 2015)

Other participant comments and their solutions can be seen in Table L4.

Customer Relationships

The following issues were mentioned and addressed in Table M5 in terms of customer relationships: 1) The consideration of the customer experience, 2) Customers developing their own consumption experience, 3) Considering less expensive customer relationships first, 4) Aligning customer relationships with the corporate values and 5) How to deliver a hassle-free procurement experience.

Revenue Streams

Another High-Level consideration that applied to each of the nine building blocks was the concept of other business model patterns/archetypes. Participant 4 commented on this concept in Table M6 writing "There are many revenue models and other business models that exist which should provide patterns for the analysis and study for this block and others." Other issues that were addressed are: 1) Value exchanges between stakeholders, 2) Analysing revenue streams in terms of gross profit, 3) The generation of revenue itself and 4) The lifecycle of the revenue stream.

Key Resources

Participant 6 required the consideration of a "resource attraction and retention strategy", while Participant 9 commented "What is important in this block is what resources are unique for your company and make you different from competition. The strategic make or buy decisions should be reflected in this block." The guidelines generated in line with their suggestions are illustrated in Table M7.

Key Activities

Participant 4 required the identification of value creation processes, as well as their supporting processes. Participant 6 suggested that the maturity, cost and efficiency of Key Activities be considered in Table M8.

Key Partnerships
Participant 10 commented "Identify the required characteristics/core values of a business partner", after which the following new guideline was generated in Table M9: Consider whether the characteristics and core values of the Key Partnerships are compatible with the new business model.

Cost Structure
Participant 10 suggested in Table M10 that costs be defined in terms of fixed or variable and financial or non-financial costs. The following two new guidelines were generated in line with this: 1) Define whether costs are fixed or variable and 2) Define whether costs are financial or non-financial.

5.5.1.6 Discussion of Round 1 Results

Section 5.5.1.1 to 5.5.1.5 illustrated and described the results obtained from the first Delphi round survey. A quantitative analysis of the Likert scale questions within each of the ten categories revealed that consensus was not entirely obtained. This was supported by the amount and variety of feedback that was received from the participants themselves.

It was clear that the backward income statement was a major problem area in all the categories where it was mentioned, namely Distribution Channels, Revenue Streams, Key Resources, Key Activities, Key Partnerships and Cost Structure. The common theme that came through was that it should not be used as a starting point and initial identification tool, but rather be used a final downstream process that will record, test and validate the financial feasibility of the business model building blocks.

For this reason, the backward income statement was shifted to only the Revenue Stream and Cost Structure building blocks, to be taken into consideration last once the rest of the building blocks have been designed. Since it serves as a tool that considers the entire business model, it was considered as a High-Level design guideline. Overall, the participants seem to disagree less with the backward income statement being part of the Revenue Stream and Cost Structure building blocks when looking at Table 5.8. The Revenue Streams passed all its consensus criteria, while the Cost Structure only failed in the less prominent Level of Agreement and mean measures. Therefore, the participants disagreed more in terms of the backward income statement within the business model categories such as the Distribution Channels, Key Resources, Key Activities and Key Partnerships.

Other important themes that were obtained from the feedback were the concepts of flexibility, value, innovation generation and the use of business model patterns/archetypes. These themes were highlighted in a summary document containing the feedback given to the participants concerning the results of the first Delphi round. The summary document additionally stated each participant's relative position to the rest of the group as required by a Delphi method. It was included in an email that was sent to the twelve participants to invite them to participate in a second Delphi round. The invitation email and an example of the summary document sent to Participant 1 can be seen in Appendix N in Sections N.1 and N.2 respectively. The summary document was kept short and simple, to maintain the participants' attention with regards to participation.

5.5.2 Delphi Round 2

The second Delphi round survey was more compact and shorter in length so that it was more inviting for the twelve participants to partake in a second consecutive survey. The second survey contained one closed-ended quantitative question and one open-ended qualitative question for each category. The second-round survey, as was seen by the participants, contains the second set or draft of design

guidelines and can be seen in Appendix O. This section follows the same structure as the first Delphi round, by first analysing the quantitative data and then the qualitative data.

5.5.2.1 Likert scale question

Do you agree or disagree with the _____ design guidelines shown in the above table?

The Likert scale answers of all twelve participants within each of the ten categories and the associated statistical analysis are shown in Table 5.13 on the following page. A clear increase in agreement and consensus can be seen from round one. All answers were four or above, except for two answers that were chosen as three on the Likert scale.

This increase in agreement is supported by the consensus analysis which shows that each of the ten categories passed all the consensus criteria in Table 5.13. Finally, Table 5.12 below shows that all ten categories additionally passed the confidence interval consensus criteria as well.

Table 5.12: Round 2 consensuses in terms of the confidence interval

	High Level	Cust. Segm.	Value Prop.	Distr. Chan.	Cust. Relat.	Rev. Str.	Key Res.	Key Act.	Key Partn.	Cost Struct.
UL	5.12	4.99	5.27	4.99	4.81	4.81	4.99	4.81	5.14	4.99
LL	3.22	3.51	3.23	3.51	3.53	3.53	3.51	3.53	3.52	3.51
#	11	12	11	12	10	10	12	10	12	12
%	91.67	100.00	91.67	100.00	83.33	83.33	100.00	83.33	100.00	100.00

According to Prof Nel, the two best ways to illustrate how consensus increased from round one to round two is the following: 1) Comparing the mean of the Level of Agreements of both rounds and 2) Generating bar charts showing the frequency of Likert scale answer choices for each of the ten categories (Nel, personal communication, 14 August 2017).

The mean Level of Agreement of round one and two was calculated as 75.83% and 97.50% respectively. Therefore, an increase of 21.67% can be observed. Appendix P contains the generated bar charts, which were generated in Statistica, of round one and round two for each design guideline category. When comparing these charts, it can be clearly seen how an increase in agreement occurred from the first to the second round.

5.5.2.2 Qualitative improvement/disagreement question

If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.

All qualitative feedback from round two can be seen in Appendix Q. Qualitative feedback was received for the following categories: High-Level, Customer Segments, Value Proposition, Customer Relationships, Revenue Streams and Key Resources. Only four comments were however found to have made a meaningful contribution.

Participant 4 did not agree with the Net Present Value (NPV) calculations and its associated assumptions from guideline $HL5_2$. The guideline was accordingly altered to be more generic to consider financial and non-financial aspects. However, it must be noted that Johnson's (2010b) BMI framework generates assumptions that are then later tested, and Osterwalder & Pigneur (2010) describe BMI as being a disordered and unpredictable process which requires the user to be able to handle ambiguity and uncertainty within the initial phases.

Table 5.13: Delphi Round 2 Likert scale analysis

	High Level	Customer Segment	Value Proposition	Distribution Channel	Customer Relationship	Revenue Streams	Key Resources	Key Activity	Key Partnerships	Cost Structure
Participant 1	4	4	4	4	4	4	4	4	4	4
Participant 2	4	4	3	4	4	4	4	4	5	4
Participant 3	4	4	4	4	4	4	4	4	4	4
Participant 4	4	4	5	5	5	4	5	5	4	5
Participant 5	4	4	4	4	4	4	4	4	4	4
Participant 6	3	4	5	5	4	4	4	4	5	4
Participant 7	4	5	5	4	4	5	5	4	5	4
Participant 8	4	4	4	4	4	4	4	4	4	4
Participant 9	5	5	4	4	4	4	4	4	5	4
Participant 10	5	5	5	4	4	5	5	4	4	5
Participant 11	4	4	4	4	4	4	4	4	4	4
Participant 12	5	4	4	5	5	4	4	5	4	5
Level of Agreement (%)	91.67	100.00	83.33	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mean	4.17	4.25	4.25	4.25	4.17	4.17	4.25	4.17	4.33	4.25
Median	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Mode	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Standard Deviation	0.58	0.45	0.62	0.45	0.39	0.39	0.45	0.39	0.49	0.45
CV	0.14	0.11	0.15	0.11	0.09	0.09	0.11	0.09	0.11	0.11
IQR	0.75	0.75	1.00	0.75	0.00	0.00	0.75	0.00	1.00	0.75

Five Point Likert Scale Ranking			1	2	3	4	5
Ranking Colour							
Consensus Colour	Satisfactory Consensus		Unsatisfactory Consensus				

Participant 4 also suggested that customers can be additionally segmented according to their JTBD and their outcomes. According to Ulwick (2005), as suggested by Participant 4, an outcome can be defined as, "metrics used by customers to define the successful execution of a specific job". Guideline $CuSe3_2$ was suitably altered to accommodate Participant 4's suggestions.

Participant 2 suggested that the total customer cost consists of more than just money and time in Guideline $VP7_2$. Financial and non-financial aspects were covered in Sacrifice Value in Guideline $VP7_2$. However, it was decided to make this clearer and therefore the guideline was accordingly altered. Finally, a new guideline was added to the Customer Relationship category surrounding the concepts of leveraging communities and crowds, possibly through social media. This new guideline added onto the other Customer Relationship guidelines to become $CR10_3$. Other comments in Appendix Q were subjectively disregarded and a brief explanation was provided for each comment.

The amount of relative qualitative feedback received was significantly less in the first Delphi round, supporting the significant increase in consensus from round one to round two. It can be concluded that from the quantitative and qualitative analysis from round two, that successful consensus was achieved for each of the ten design guideline categories. This supports the fact that the qualitative feedback from round one was successfully interpreted and that suitable changes were made in line with these interpretations. Furthermore, the subjectivity surrounding the selection of the initial first set of design guidelines is negated by the validation process. Finally, the validation process was stopped due to consensus being reached. The final and third set of design guidelines, which have a subscript with the number three, can be seen across the following four pages in Table 5.14.

Table 5.14: Final business model design guidelines

High-Level	
$HL1_3$	Align the business's strategy with the design process in order to obtain a business model that will possess a sustainable competitive advantage.
$HL2_3$	Utilise the mobilise, identify, understand, design, assess, implement, test, scale, manage and adjust stages, which is flexible in nature and does not have to be followed in a strict linear fashion.
$HL3_3$	Obtain a good understanding of a business model before commencing with the BMI process.
$HL4_3$	Ensure the business model design process is aligned with the mission and vision of the company.
$HL5_3$	Consider the value creation potential of the new business model not only from a financial perspective, but also a non-financial perspective (how value can be created for each of the different stakeholders, e.g. customers, the organisation, partners, etc).
$HL6_3$	Use the backward income statement within the Revenue Stream and Cost Structure components in order to recognise and validate the other designed business model building blocks and evaluate their financial feasibility.
$HL7_3$	Generate potential innovation in every building block by: 1. Looking at the dominant Channels within the industry 2. Dissect the most important long held beliefs 3. Turning the underlying belief on its head 4. Sanity test the reframed belief 5. Translate the reframed belief into your business model
$HL8_3$	Consider other business model patterns/archetypes in every building block.
Customer Segment	
$CuSe1_3$	Identify the customer's Job to be Done.
$CuSe2_3$	Define who the business is creating value for.
$CuSe3_3$	Group customers into separate segments with the following criteria: • Customer needs that require and justify a distinct offer. • Customers must be reached through different distribution channels. • Customers require different types of relationships. • Customers have substantial different profitability's. • Customers are willing to pay for different aspects of the value offer.

	• Common needs or jobs, common behaviours or other attributes such as outcomes (metrics used by customers to define the successful execution of a specific job).
$CuSe4_3$	Identify which customers will be served and which will not be served.
$CuSe5_3$	Define the most important customers that are in line with the future business model.
$CuSe6_3$	Consider current and future customer needs, pains and gains associated with the customers Job to be Done.
$CuSe7_3$	Define the business model's aspiration or goal for each customer segment.
$CuSe8_3$	Calculate the gross profit per customer segment and then apply the Pareto principle (80/20 rule) in order to target 20% of the customers that generate 80% of total financial value.
$CuSe9_3$	Identify and take into account the hiring criteria customers use when they choose a solution.
$CuSe10_3$	Engage with customers in order to gain a better customer understanding. Consider their businesses, life, worries and needs.
Value Proposition	
$VP1_3$	Each Value Proposition should consist of a selected bundle of products and/or services that caters to the requirements of a specific Customer Segment.
$VP2_3$	Consider the barriers that limit customers from getting a job done: wealth, access, skill and time.
$VP3_3$	Ensure the value proposition is designed with user-centred design thinking - developed in such a way that it fulfils the identified customer's functional, emotional and social Job to be Done, need or problem.
$VP4_3$	Value Proposition should be aligned to your customer's value perception, desires/aspirations, experience, pains and gains.
$VP5_3$	Identify value along the complete customer journey, from purchase, delivery, use, supplements, maintenance and disposal.
$VP6_3$	Consider the following types of value the business model can generate when designing the value proposition: Functional, experiential/hedonic, symbolic/expressive, cost/sacrifice.
$VP7_3$	Ensure the business model's value creation strategy is comprised of the following types of value: Performance, pricing, relationship and co-creation.
$VP8_3$	Consider whether the overall value of the product to the customer is larger than the total cost to the customer [Total Cost/Sacrifice Value = Financial Costs (research, buying, obtaining, maintenance, switching costs) + Non-Financial Costs (emotional, social, psychological, relationship and time costs)].
$VP9_3$	Define the key and complementary offerings that will assist the customers to get their job done.
$VP10_3$	Consider what additional products and services can be offered that customers have not explicitly asked for.
$VP11_3$	Show how your value proposition differs from competing value propositions.
Distribution Channels	
$DC1_3$	Establish how the value proposition will reach each customer segment.
$DC2_3$	When selecting distribution channels, consider how the distribution channel will deliver the value proposition, engage customers, as well as support customers afterwards.
$DC3_3$	Consider the distribution channels for staff and suppliers of service.
$DC4_3$	Consider the influence of the customer experience.
$DC5_3$	Establish how a customer can engage with the company and obtain its value propositions.
$DC6_3$	Consider the following when selecting distribution channels: • Number of customer segments • Investment required • Whether the product is standard across the customer segments • Amount of control required • How long a healthy relationship will take to be established with the distributor as well as the length of the relationship • Factors which contribute to the flexibility of the channel
$DC7_3$	Consider the following channel phases: 1) Awareness, 2) Evaluation, 3) Purchase, 4) Delivery, 5) After Sales.
$DC8_3$	Consider the following two types of channels: 1) Own/Direct Channel 2) Partner/Indirect Channel
$DC9_3$	Consider the product-channel and consumer-channel interactions.
Customer Relationships	

$CR1_3$	Define what type of relationship does each of the customer segments expect the business to establish and maintain with them.
$CR2_3$	Establish how the customer relationships are integrated with the rest of the business model.
$CR3_3$	Consider what can be done to create and deliver a hassle-free purchase and consumption experience.
$CR4_3$	Consider how can customers find it beneficial to influence various parts of the business system to co-create or co-produce their own unique purchase and consumption experience.
$CR5_3$	Obtain an angle on customer intimacy by obtaining a customer's perspective.
$CR6_3$	Consider how customer expectations can be exceeded.
$CR7_3$	Design the customer relationships for the enhancement of the customer experience.
$CR8_3$	Consider alternative less personal and expensive methods to engage with customers before engaging with more expensive ones (like face to face).
$CR9_3$	Ensure that the customer relationship is in line with corporate values.
$CR10_3$	Consider how you can leverage communities and crowds to support your customer relationships.
Revenue Streams	
$RS1_3$	Define what type or mix of revenue streams the business model will have, either: 1. Transactional revenues (one-time customer payments) 2. Recurring revenues (ongoing customer payments).
$RS2_3$	Define what the pricing mechanism each revenue stream will have, either: 1. Fixed Menu Pricing (predefined prices based on static variables) 2. Dynamic Pricing (Prices that change based on market conditions)
$RS3_3$	Consider how other additional supporting Revenue Streams can be generated from the delivery as well as support of the Value Proposition.
$RS4_3$	Consider the bundling of products and services in generating new revenue streams.
$RS5_3$	All possible value exchanges between all stakeholders in the business model should be looked at as possible additional revenue streams.
$RS6_3$	Consider non-traditional revenue streams such as revenue streams from third parties
$RS7_3$	Consider analysing the revenue streams in terms of gross profit instead of just revenue.
$RS8_3$	Consider not only the types of revenue streams, but how revenue will be generated through for example the uniqueness of the value propositions or the customer experience and its influence on the pricing decision (how to price the value). Also consider the life cycle of the revenue stream.
Cost Structure	
$CS1_3$	Define what balance the business model will have between the two extremes of having: 1. A Cost-Driven (minimisation of costs) Cost Structure 2. A Value-Driven (Value maximisation) Cost Structure.
$CS2_3$	Derive your cost streams from all the other business model building blocks.
$CS3_3$	Define whether costs are fixed or variable.
$CS4_3$	Define whether costs are financial or non-financial.
Key Resources	
$KR1_3$	Identify the required key resources for the value proposition, distribution channels, customer relationships and revenue streams and then categorise them into the following categories: • Physical (Manufacturing facilities, buildings, vehicles, equipment and machines, systems, distribution networks, technology, products) • Intellectual (Trademarks, information, patents, copyrights, branding, alliances and partnerships) • Human • Financial (Cash, credit channels, staff stock option pool, funding)
$KR2_3$	Consider what is required in order to attract and retain key resources.
$KR3_3$	Consider how Key Resources can be made unique and distinct from the competition.
$KR4_3$	Consider which Key resources can be internally produced and which must be bought.
Key Activities	
$KA1_3$	Identify the key activities required for the value proposition, distribution channels, customer relationships and revenue streams and then categorise them into: 1. Primary Activities 2. Support Activities Choose then those activities that are core to the business model.
$KA2_3$	Identify the value creation processes and their related supporting processes.
$KA3_3$	Consider the maturity, cost and efficiency of the Key Activities.

Key Partnerships	
$KP1_3$	Consider the following four types of partnerships to aid in the design process: 1. Strategic alliances between non-competitors. 2. Coopetition: Strategic partnerships between competitors. 3. Joint ventures to develop new businesses. 4. Buyer-supplier relationships to assure reliable supplies.
$KP2_3$	Define the purpose of the partnership - the set of value contributions desired from a partner.
$KP3_3$	Define how you will create and deliver value to your partner (it needs to be a value exchange).
$KP4_3$	Consider whether the characteristics and core values of the Key Partnerships are compatible with the new business model.
$KP5_3$	Identify and consider what additional value the Key Partners can bring to each business model building block.

These final sets of design guidelines in Table 5.14 focus mainly on the design of a new business model itself. Although, they will be used to assist and support the developmental process of the proposed framework in a subtle manner. Section 5.6 summarises this chapter.

5.6 Chapter summary

A two round Delphi method in the form of a combined quantitative and qualitative survey was described in terms of its theory, methodology, design and results. The survey was executed with twelve suitable experts to investigate and validate design guidelines for ten different business model categories. A descriptive statistical and basic thematic analysis of the first round revealed that another Delphi round was required due to certain design guideline categories which did not pass the consensus criteria as well as the amount and variety of qualitative feedback than was received. Appropriate adjustments were made to the design guidelines after which a second Delphi round took place. An increase in overall agreement occurred in this second round which resulted in all ten business model categories passing all the consensus criteria, as well as a reduced number of generated feedback that was found to be relevant. Therefore, consensus was reached at the end of the second Delphi round, which supported that the successful interpretation and adjustment of data as well as resulting in the termination of the validation and hence Delphi process.

The following objective, as stated in Section 1.3, is fully achieved in Chapter 5:

6. Identify key design guidelines to be considered when developing the various building blocks of a business model.

Since the design guidelines will assist the development of the framework, Chapter 5 partially achieved the following objective:

8. Develop a framework capable of systematically identifying a white space opportunity and developing an innovative business model.

The following chapter, Chapter 6, makes use of the literature review and the final set of design guidelines to generate a proposed white space BMI framework, which will be used to identify a white space opportunity and develop an innovative business model.

CHAPTER 6

PROPOSED SOLUTION

The literature review consists of Chapter 2, 3 and 4. Chapter 2 introduces and elaborates on the concepts of enterprise engineering, business models, business model innovation and white spaces. Chapter 3 discusses research domains, with relationships connected to the topics in Chapter 2. Chapter 4 provides a summary of Chapters 2 and 3, as well as a synthesis in terms of the components of a business model, business model design guidelines and critical stages. Chapter 5 generated, validated and investigated business model design guidelines through a Delphi technique.

Chapter 6 utilises the literature review and the final resulting design guidelines from Chapter 5 as a base to put forward a solution consisting of a white space BMI framework that assists a firm to identify a white space opportunity and develop an innovative business model. This chapter starts off with an overview of the solution in Section 6.1, a description of how the solution was developed in Section 6.2, followed by a detailed description of every component of the framework in a set and structured manner in Section 6.3. Finally, Section 6.4 summarises the chapter. Figure 6.1 below illustrates the position of Chapter 6 in relation to the research study.

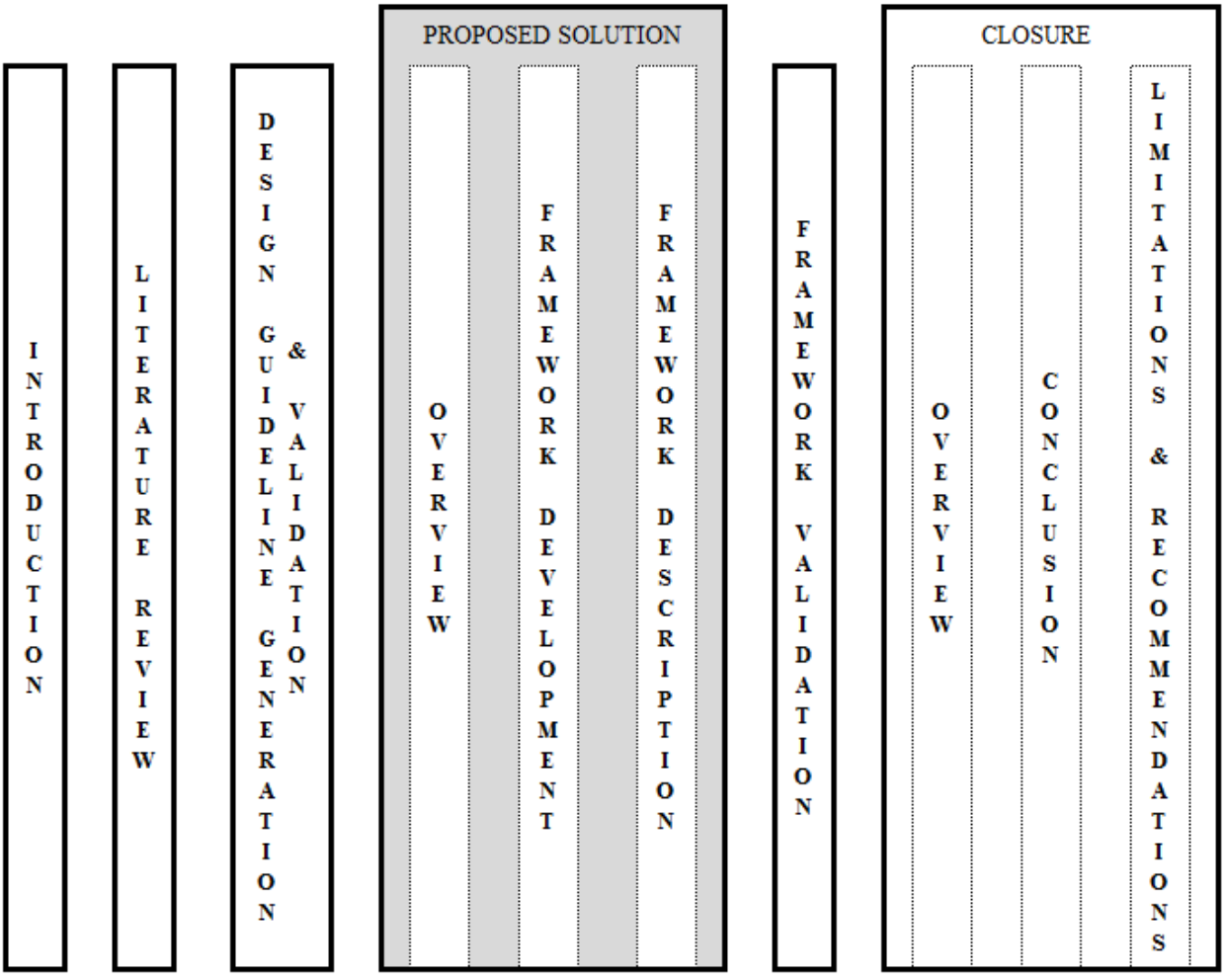


Figure 6.1: The position of chapter 6 relative to the research study

6.1 Framework overview

It can be seen from the literature review and design guidelines that the number of concepts, ideas, theories, elements and proposed solutions regarding the core research domains are vast. Due to the uncertainty of the decisions that must be made to capture a white space, as well as the lack of understanding of BMI within organisations, managers and firms require a structured process to guide and assist them as to which decisions to make in which order (Johnson, 2010b; Frankenberger *et al.*, 2013). The proposed framework therefore focuses on the actual decision-making process and its completeness, with regards to the inclusion of all the necessary phases, stages, activities and tools. The framework is therefore generic and not limited to a specific application.

The main objective of this research study is to develop a white space BMI framework capable of systematically identifying a white space and developing an innovative business model. More specifically, it should identify which decisions could be made, as well as recognise and ensure that the framework incorporates appropriate processes, design guidelines and tools. The framework consists of a structured process that clarifies the decision-making process that should take place to identify a white space opportunity and develop an innovative business model.

The framework was designed by analysing the entire literature review and by considering the final set of design guidelines from Chapter 5. The theories, concepts, and proposed frameworks were used from the literature review to design the proposed framework in way that provides a comprehensive approach towards the core research problem of the study.

Sections 6.1 and 6.2 aim to give an overview and developmental description of the proposed framework, as well as set the tone for the detailed description given in Section 6.3. The research objectives which Chapter 6 aims to achieve are recited below to refresh the reader's memory about the goals of the author when then framework was designed.

7. Identify the relevant methods and tools necessary to assist the business model development process.

8. Develop a framework capable of systematically identifying a white space opportunity and developing an innovative business model.

The literature review produced in Chapters 2 to 4, as well the design guidelines in Chapter 5, provided sufficient research material to achieve the above-mentioned objectives. The following section explains how the framework was developed.

6.2 Framework development

The framework was developed in two stages: 1) An initial framework was developed from the literature review and final design guidelines and 2) The framework was then validated with experts and refined based on their comments which resulted in the final framework. Chapter 6 describes the first stage, while the second stage will be described in Chapter 7.

To answer the main research problem, the proposed solution consists of a framework that assists the user to make informed decisions on how to identify a white space opportunity and then develop a new innovative business model for that opportunity, by following a comprehensive BMI process. The framework was designed from the literature review and the design guidelines, and directly influenced from the following main sections: business models, BMI, white spaces, innovation and innovation

management, strategy, opportunity identification and opportunity analysis. The process used to develop the framework can be broken into four distinct stages, as illustrated in Figure 6.2 below.

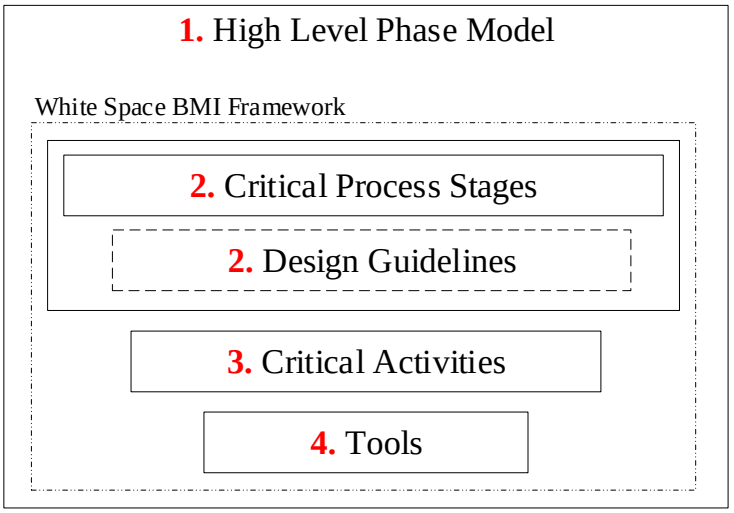


Figure 6.2: Framework development process

The framework was developed by first defining the high-level phases guiding the business model development process. Then certain design guidelines were categorised into the critical stages to provide additional guidance, hence the dotted outlining of the design guidelines in Figure 6.2, for each defined stage, followed by critical activities per stage and tools for each critical activity. The four development stages were therefore sequentially categorised into one another.

Section 6.2.1 to 6.2.4 will explain each development stage from Figure 6.2, after which the result will be illustrated and explained in Section 6.2.5. The four development stages were executed by performing an identification process of relevant, prominent and popular work associated with the problem of this study - after which its summarised evidence was assessed and interpreted.

6.2.1 High-Level Phase Model

From the literature review, it was found that most innovation models agree on the generic stages of the innovation process. The Fugle model was identified as the innovation model that provided the most comprehensive coverage of the different stages in an innovation process. It was therefore chosen as the innovation model of choice to describe the high-level phases of the framework. Therefore, the white space BMI framework is broken up into different parts, which fit into and follow these high-level phases.

Figure 6.3, as seen on the following page, illustrates the proposed High-Level Phase Model which has been adapted from the Fugle model to accommodate the objective of the research study. The framework encompasses Phase 1 to Phase 4, although the core focus of the research study remains on Phase 1 to Phase 3. As previously stated, the implementation and management of a business model does not fall into the core focus of this research study. Therefore, the focus will be from Phase 1 to Phase 3, with Phase 4 to Phase 6 only being briefly addressed. Phase 0 incorporates the initial stages of innovation. The phase descriptions, listed at the top of page 118, stem directly from the Fugle model but have been described through the lens of this research study.

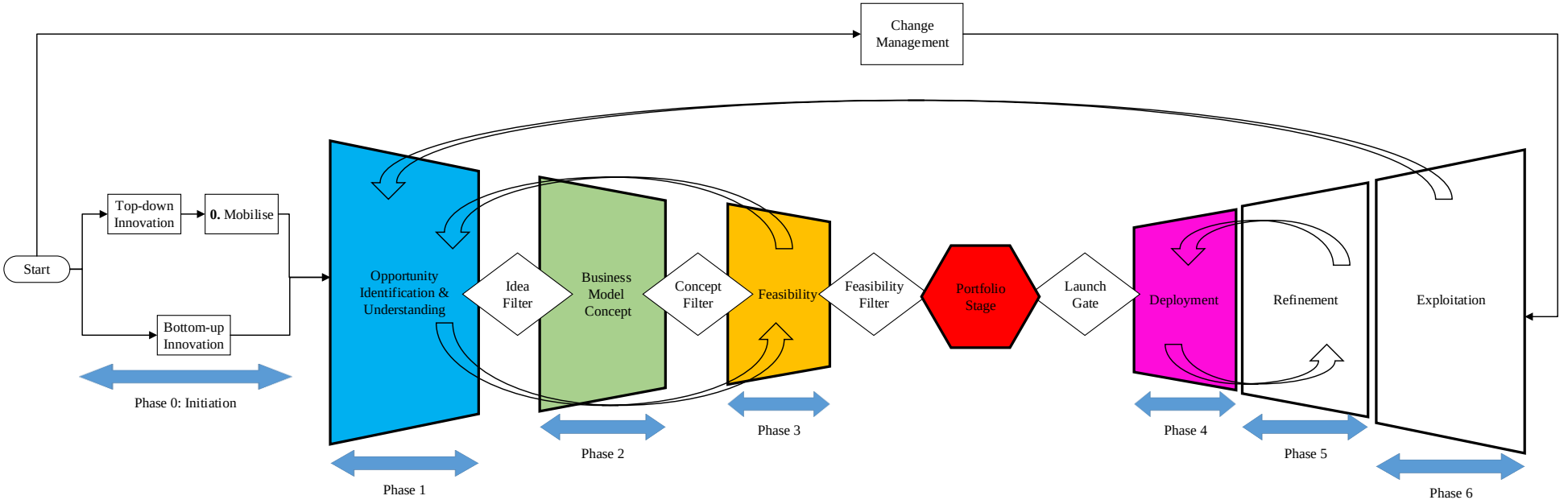


Figure 6.3: Initial High-Level Phase Model for BMI framework based on the Fugle Innovation Model

- Phase 0, which was not part of the original Fugle model, serves to describe how the High-Level Phase Model could be initiated.
- Phase 1 contains the identification, assessment, ranking, classification and understanding of white space opportunities.
- Phase 2 involves the design and refinement of concept business models for the chosen white space opportunity.
- Phase 3 entails assessing the feasibility of the business models, as well as refining them.
- The Portfolio Stage prepares the final business model for launching.
- Phase 4 entails the implementation, testing and detail design of the final business model.
- Phase 5 involves incremental refinements of the business model to achieve optimal functionality.
- Phase 6 entails the generation of new and additional value by exploiting new opportunities and generating new business models.

A Change Management process, which will be explained at the end of Chapter 6, runs in parallel with the entire High-Level Phase Model, and therefore framework, to assist with the management of changes generated within the BMI process. Finally, the flexible iterative process has been adapted from the original Fugle model as indicated by the transparent circular arrows in Figure 6.3. The arrows indicate that although shown linearly, the process is in fact iterative with various forward and return loops possible. The logical progression is, however, towards the right side of the process.

6.2.2 Critical Process Stages and Design Guidelines

The critical process stages identified in the synthesis and validated through design guideline $HL2_3$ were the following: 1) Mobilise, 2) Identify, 3) Understand, 4) Design, 5) Assess, 6) Implement 7) Test and 8) Scale, Manage and Adjust. These eight stages were then categorised into the High-Level Model's phases. Since Phase 1 to 3 is the focus of this research study, the first five stages will be focused on during the framework development description. Certain final design guidelines from Chapter 5 were then subjectively categorised into these five critical process stages, to provide guidance and additional context. This categorisation can be seen in Table 6.1 below.

Table 6.1: Categorisation of design guidelines into the first five critical BMI stages

High-Level Phases	Phase 0	Phase 1		Phase 2	Phase 3
Critical Stages	Mobilise	Identify	Understand	Design	Assess
Design Guidelines	$HL2_3$; $HL4_3$	$HL2_3$; $HL3_3$	$HL2_3$	HL_3; $CuSe_3$; VP_3; CR_3; RS_3; CS_3; DC_3; KR_3; KA_3; KP_3	$HL2_3$; $HL6_3$
		$CuSe1_3$; $CuSe10_3$	$CuSe_3$		$CS2_3$; $CS3_3$; $CS4_3$;
		$VP3_3$	$VP9_3$; $VP10_3$; $VP11_3$		$RS1_3$; $RS2_3$; $RS7_3$
			$RS3_3$; $RS4_3$; $RS3_3$;		
			$KR3_3$		

As previously described, in terms of the numbering convention, $HL2_3$ for example indicates the second specific design guideline in the High-Level set. While HL_3 indicates the entire set of High-Level design guidelines. The design guidelines focus mainly on the design aspect of a business model specifically, but have been used to assist the framework's development where applicable.

6.2.3 Critical Activities

To identify the detailed steps, which should be executed within the white space BMI framework, critical activities were identified across the same BMI and innovation frameworks as was executed for the critical process stages in the synthesis. The critical activities were identified by analysing these prominent BMI and innovation frameworks in the literature review, after which the popular critical activities were subjectively chosen. The occurrence of these critical activities within these frameworks were then marked by executing a cross-sectional analysis. This cross-sectional analysis of critical activities can be seen on the following page along with their corresponding and supporting BMI and innovation authors in Table 6.3. Following on from the colour coding used with the critical BMI stages in the synthesis - the green indicates the BMI frameworks while the blue indicates the innovation frameworks in Table 6.3.

Considering all the information gained up to the end of the second framework development stage, the critical activities from Table 6.3 were then categorised into the critical stages. The next step was to identify the required concepts and tools to be situated within each critical activity.

6.2.4 Tools

According to Romero and Molina (2015) a toolkit is a set of resources that is used as conditionally needed by the designer. The tools to be situated within each critical activity was subjectively identified and chosen by considering and analysing all the information within the various phases, stages, guidelines and activities up to this point, as well as from the knowledge gained from the literature review. This tool selection was done in two ways:

1. Selecting previously described tools from the two tool orientated BMI frameworks: Osterwalder & Pigneur's (2010) Five Stage BMI Process and Geterud & Tegern's (2012) BMI Tool Framework.

2. Searching through literature for other individual tools or tool orientated frameworks to fill in for, or act as support, for point one above.

The additional tools identified from point 2 above are described in detail in Appendix R. Two additional tool frameworks are described in Appendix R, namely the Blue Ocean Strategy by Kim & Mauborgne (2015) in Section R.1 and the Customer-Centric New Product Development Model from Romero & Molina (2015) in Section R.2. Individual tool were also identified in Section R.3.

The Business Model Canvas, Customer-Centric New Product Development Model and BMI Tool Framework all consisted of different stages. Therefore, an attempt was made to compare their respective stages in terms of their similarities by analysing their stage descriptions. From their respective stage descriptions, the stages were able to be categorised into four of the critical process stages, as seen below in Table 6.2.

Table 6.2: The categorisation of three tool framework's stages into the critical BMI stages

Critical BMI Stages	Business Model Canvas Stages	Customer-Centric New Product Development Model Stages	BMI Tool Framework Stages
Identify	-	Divergence	Innovating the business model
Understand	Understand	Structuring	Business background
Design	Design	Convergence	-
Assess	Design	Convergence	Concept Assessment; Reinvented business model

Table 6.3: Cross sectional analysis of critical activities within the reviewed BMI and innovation frameworks

Source	Lindgardt & Reeves (2011)	Osterwalder & Pigneur (2010)	Geterud & Tegern (2012)	Johnson (2010b)	Frankenberger *et al.* (2013)	Geissdoerfer *et al.* (2017)	Tidd *et al.* (2005)	Du Preez & Louw (2008)	Hansen & Birkinshaw (2007)
Framework Heading	Circular BMI Process	Five Stage BMI Process	BMI Tool Framework	Repeatable BMI Process	4I Framework	Cambridge BMI Process	Innovation as a core business process	Fugle Model	Innovation Value Chain
State goal/purpose/ objective.		X	X			X			
Understand the firm's current business model	X	X	X	X		X			X
Industry analysis		X		X					X
Identify opportunities through JTBD		X		X					
Identify opportunities through gaining an understanding	X	X	X		X				X
Analyse Customers	X	X	X	X	X				X
Analyse Competitors		X	X		X				X
Analyse Technological Trends		X				X			
Look past present market and customer boundaries	X	X							
Assess idea/concept	X	X	X	X	X	X	X	X	X
Store Opportunity								X	
Classify opportunity as an adjacent, white space or core opportunity.				X					
Generate a prototype		X				X		X	
Use Business Model Archetypes/patterns to assist the design process		X				X			
Ensure a flexible process		X		X	X	X	X	X	X

Following on from Table 6.2, a cross-sectional analysis, seen in Table 6.4 below, of the chosen tools were performed in terms of their inclusion between the three tool orientated frameworks, as well as their stage positioning using the colour coding from Table 6.2. This was done to motivate their categorisation into the respective critical activities. The Blue Ocean Strategy was also included in Table 6.4 to further motivate the occurrence of the tools, but was not colour coded since it does not contain any specific stages as such.

Table 6.4: Cross sectional and phase analysis of tools situated within three tool orientated frameworks

Author	Geterud & Tegern (2012)	Romero & Molina (2015)	Osterwalder & Pigneur (2010)	Kim & Mauborgne (2017)	
Framework Name	BMI Tool Framework	Customer-Centric Model	Business Model Canvas	Blue Ocean Strategy	**Section**
Goal and Scope	X		X		2.3.3.1 D.2.1
Jobs to be Done	X	X	X		R.2.2.1
Product Characteristics	X	X			D.2.1 R.2.3.1
Overview of Applications	X	X			D.2.1 R.2.3.1
Competitive Environment	X		X		D.1 D.2.1
Current Business Model	X				D.2.2
Value Proposition Canvas	X			X	D.2.2 R.1.1
Customer Insight	X		X		D.1 D.2.1
Buyer Utility Map	X			X	D.2.2 R.1.3
Consumer Trend Canvas		X			R.2.1.2
Outcome expectations		X			R.2.2.2
Kano Model		X			R.2.2.2
Ethnography		X			R.2.2.3
Empathy Canvas		X	X		R.2.2.3
Value Proposition design		X			R.2.2.4
Trends, Drivers and Lifecycles	X	X	X		D.2.1 R.2.1.2
Six Paths	X			X	D.2.2 R.1.2
House of Quality		X			R.2.3.2
Business Model Canvas	X		X		D.1
Business Model Patterns			X		D.1
Storyline	X	X	X		D.1 D.2.3 R.2.3.4
GAP Analysis	X				D.2.3
Business Impact and Uncertainty	X				D.2.3
Positioning	X				D.2.4
Risk Assessment	X				D.2.4
SWOT Analysis			X		D.1 R.3.2
Scenarios		X	X		D.2.3 R.2.3.4

Other individual tools and concepts that were identified, but which were not part of any of the tool frameworks in Table 6.4, are listed in Table 6.5 below. Their subjective inclusion in the respective critical stages are motivated.

Table 6.5: Individual tool motivation

Tool/Concept	Section	Critical Stage	Motivation
BMI Conditions	2.3.7	Identify	This specifies when BMI is required and will therefore serve as the trigger to start the identification process in Phase 1.
Industry Analysis	R.3.3	Identify	According to Prof Ungerer from the University of Stellenbosch Business School (USB) market opportunities traditionally lie within an industry (Ungerer, personal communication, 28 July 2017), and therefore an industry analysis is required before the identification of opportunities can occur.
Seven Sources of Opportunity Innovativeness	3.3.1.2	Identify	These are seven sources from where market opportunities can arise from.
Opportunity Recognition Model	3.3.2	Identify	This model specifies the required process to identify market opportunities.
Opportunity Assessment Framework	3.4.2	Identify	This framework will be used to assess the identified market opportunities.
Core, White Space & Adjacency opportunity conditions	2.4.2 2.4.4	Identify	These conditions will be used to classify the identified market opportunities and therefore identify a white space opportunity.
Porter's Five Forces	R.3.1	Understand	This tool analyses competitive forces and can therefore be used to understand the competitive market environment.
Four Box Business Model	2.2.3.2	Design	The components of the Four Box Business model (CVP, Key Resources, Key Processes and Profit Formula,) will guide the design process.
Ten Types of Innovation Framework	3.1.3.4	Design	According to Keeley *et al.* (2013), the framework can be used to generate innovation within a business. Hence it will be used to inspire innovation within the design of the new business model.
Backward Income Statement	2.3.3.4	Design	Johnson (2010b) briefly mentions this tool within his business model design description.
55 Business Model Navigator Patterns	R.3.4	Design	The 55 business model patterns serves as a source of ideas and inspiration to generate new innovative business models and can be directly applied to the company in question (Gassman *et al.*, 2014).

Section 6.2.5 introduces and illustrates the result of the development stages.

6.2.5 Proposed Conceptual Framework

The result of the distinct development stages can be seen in Table 6.6 on the following page. It illustrates the described process of how Phase 0 to Phase 3 of the High-Level Model, critical BMI stages, critical activities and identified tools were categorised into one another. Finally, Phase 4 of the High-Level Phase Model contains the last few critical BMI stages with the following step numbers: 16) Implement, 17) Test and 18) Scale, Manage and Adjust. Phase 5 and Phase 6 serve as extensions of the framework. The proposed framework can be seen in Figure 6.4 on page 124.

Table 6.6: Final result of the framework's development stages

Development Stage 1	**Development Stage 2**	**Development Stage 3**		**Development Stage 4**
High-Level Model Phase	**Critical BMI Stages**	**Step**	**Critical Activity**	**Tool**
0: Initiation Stage	Mobilise	0	State goal/purpose/ objective.	Goal and scope
1: Opportunity Identification and Understanding	-	2	Understand the organisation's current business model	Business Model Canvas
	Identify	3	Industry analysis	Industry Analysis
		5	Identify opportunities by identifying the customers JTBD	Jobs to be Done
			Identify opportunities/ ideas through gaining an understanding	Opportunity Recognition Model
				Seven Sources of Opportunity Innovativeness
		6; 8.	Store Opportunity	-
		7	Assess idea	Opportunity Assessment Framework
		9	Classify opportunity as an adjacent, white space or core opportunity.	Core, White Space or Adjacency opportunity conditions
	Understand	10	Analyse Competitors	Product Characteristics
				Overview of Applications
				Competitive Environment
				Current Business Model
				Value Proposition Canvas
				Porter's Five Forces
			Analyse Customers	Customer Insight
				Buyer Utility Map
				Consumer Trend Canvas
				Outcome expectations
				Kano Model
				Ethnography
				Empathy Canvas
				Value Proposition design
			Understand/Analyse Technological trends	Trends, Drivers and Lifecycles
			Analyse/Look past present market and customer boundaries	Six Paths
2: Business Model Concept	Design	11	Design Solution	Component Design: Four Block Business Model
				Component Design: Business Model Canvas
				Component Design: Design Guidelines
				Component Design: Ten Types of Innovation
				Backward Income Statement
				House of Quality
		12	Use Business Model Archetypes/patterns to assist the design process	55 Business Model Navigator Patterns
3: Feasibility	Assess	13	Generate a prototype	-
		14.	Assess Concept	Storyline
				GAP Analysis
				Business Impact and Uncertainty
				Positioning
				Risk Assessment
				Building block SWOT Analysis

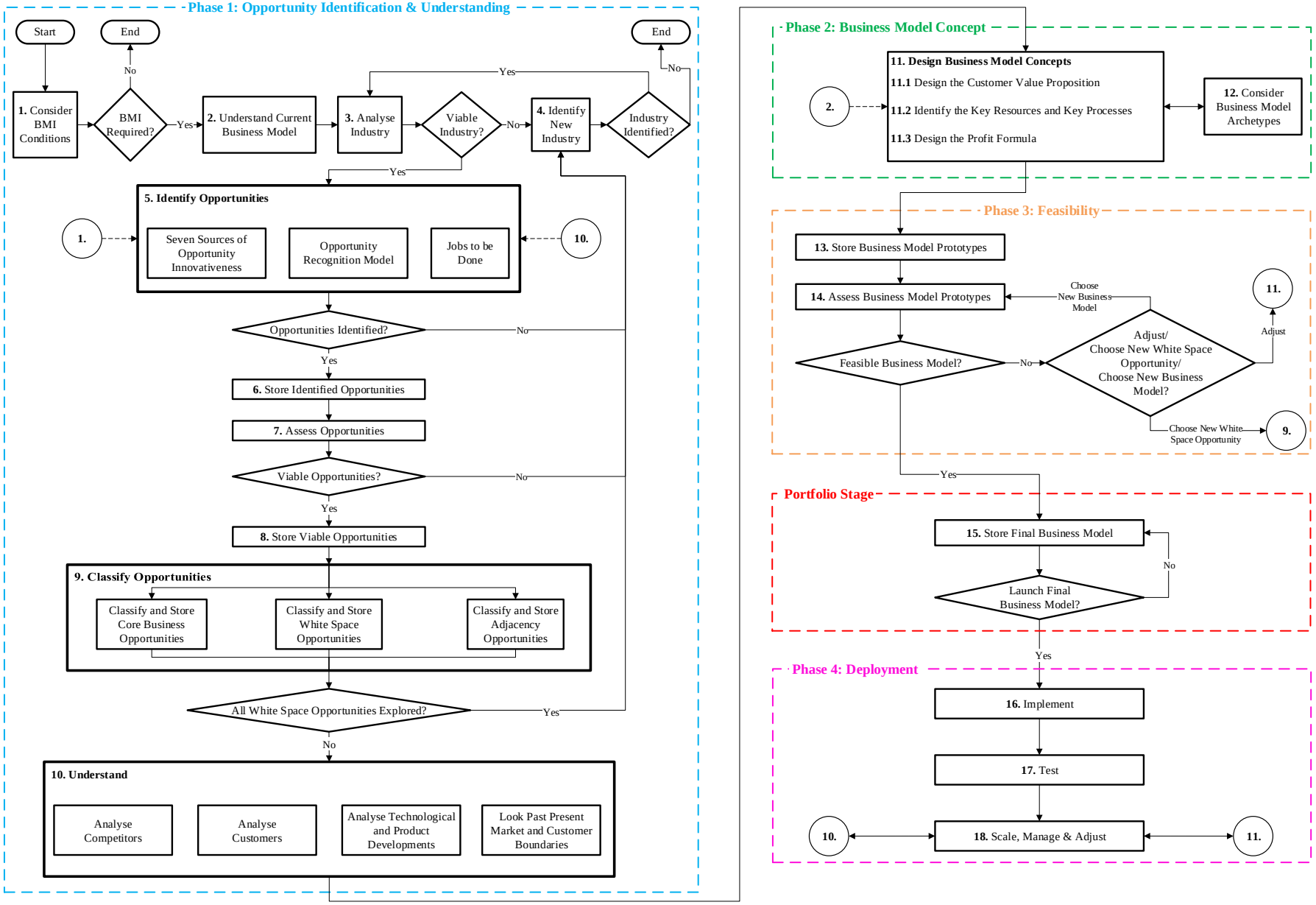


Figure 6.4: Proposed white space BMI framework

The framework in Figure 6.4 is essentially a flow chart with numbered blocks that are connected by arrows. The arrows guide and lead the direction of the process, resulting in a bound sequence. The numbering system acts as a reference to each framework block for explanatory and validation purposes, as well as serving and acting as a rational chronological guideline in assisting the user. Decision-making points are assumed to form part of the steps they flow out of. Additionally, solid flow lines indicate the transferal to that specific step while dotted flow lines act as a reference input.

Certain steps within entire framework influence one another and have a ripple effect, which would lead to the generation of a different business model at the end of the framework depending on how every decision is executed. Therefore, it is important to understand the interaction between each framework step to comprehend what type of final solution could be generated.

The focus of the entire framework from start to end is for settled businesses that want to design a new business model for a white space opportunity. This is due to certain framework steps that utilise the user/firm's (or parent organisation's) current business model.

The first part of a business should be to make innovation part of their organisational culture and strategic intent. The proposed solution will be executed assuming the business chooses to pursue a white space opportunity. If this occurs, the business must align their innovation process with their business strategy.

The framework methodology focuses on a result in which only a single business model is to be chosen for a single white space opportunity. This research study concentrates on generating a generic guide to help ensure the consideration of good decision-making practice to identify a white space opportunity and develop an appropriate business model. Finally, the dynamics of how a *Yes* or *No* decision output is decided upon depends on the judgement of the user/parent company.

The following section briefly reproduces the framework features after which in Section 6.3 every step in the proposed framework is described.

6.2.6 Framework features

As it was listed in Section 1.3, the framework is required to have the following five important key features:

1. The framework should be *generic* enough to be used within different industries and not be limited to a specific application.
2. The process of moving through the framework should be rational and pilot a *structured* and organised decision-making process.
3. The framework should be able to be effectively *practicable* within industries and not be limited to a specific application.
4. The framework should contain a substantiated, inclusive and *comprehensive* approach to the problem by integrating various fields of discipline.
5. The framework should be *flexible* and *adjustable* enough to be used within specific situations.

Due to the tough and intricate decisions that must be made when trying to capture a white space opportunity and develop a new business model, the proposed framework had to present to firms an organised, realistic and logical solution to the problem at hand. The pragmatic value of the framework increases the probability of it being implemented in industry. Hence the practical action descriptions

and inclusion and generation of tool templates as will be seen. The research problem of this study encompasses many research domains. Therefore, it is vital for the framework to provide an in-depth outlook on the problem, so that it can assist in finding the best solution for a specific situation.

Additionally, the proposed framework incorporates intricate flow lines, sequential component listings and steps within steps - which all lead to a comprehensive relationship between framework steps, which most other BMI frameworks have not presented.

Finally, the framework follows a macro to micro and external to internal view. This is achieved by identifying an external and macro industry, identifying opportunities within that industry, assessing the opportunities, classifying the opportunities, understanding an opportunity and then designing, assessing and implementing an appropriate business model for that that opportunity.

6.3 Framework description

Section 6.3 entails the description of the proposed framework. Sections 6.3.1 to 6.3.9 describes the framework in terms of the High-Level Model's phases. Finally, Section 6.3.10 describes the change management process.

The description of the framework steps follows a set structure. This serves to assist in the overall understanding of the framework. The structure of each framework step description consists of the components listed below:

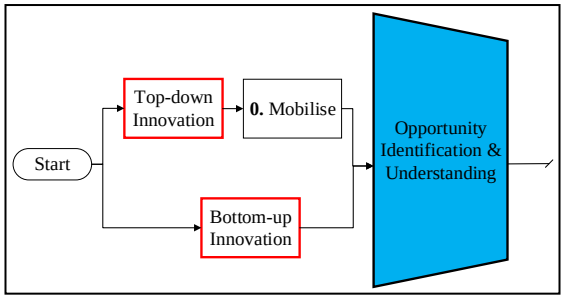
1. Objective: A short description of the objective of the specific step.
2. Input: The input into the framework step is described.
3. Motivation for actions: Provides motivation for the required step actions.
4. Actions: What actions the user can make to execute that specific framework step.
5. Output: The output of the framework step is described.

Key considerations for each tool were generated for the most prominent framework steps for summary purposes. This summary can be seen in Table S1 in Appendix S.

6.3.1 Phase 0: Initiation

Phase 0 consists of top-down innovation, bottom-up innovation and mobilisation.

6.3.1.1 Top-down and Bottom-up innovation

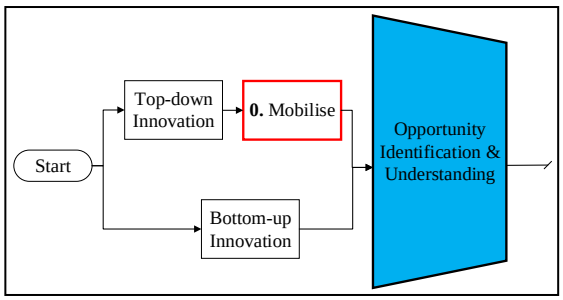


This serves as a brief introduction to illustrate how the proposed framework could be initiated in a working environment. Innovation can be started by one of two different strategies: Top-Down or Bottom-Up innovation (Gaynor, 2002).

Bottom-Up innovation entails an embryonic idea, product or service that has been generated. This idea then requires a better understanding before a business case can be made to the firm's management, who then decides whether the idea will be mobilised or not (Gaynor, 2002). Therefore, once the Bottom-Up innovation idea has been generated, the following step is Phase 1: Opportunity Identification and Understanding.

On the other hand, Top-Down innovation involves the constant search for new ideas or opportunities as part of a management initiative or drive, where mobilisation is implemented from the start (Gaynor, 2002). Chapter 6 will be described in term of a Top-Down innovation strategy.

6.3.1.2 Step 0: Mobilise



Objective: To set an appropriate base and common platform for the upcoming BMI project and process.

Motivation: As discussed in Section 2.3.4.1, Comes & Berniker (2008) stress the importance of creating a separate business unit before the BMI process is initiated. This separate unit refrains the parent company's structures from influencing the new business model design process. Pursuing a white space is a big and important decision for any firm to make. It involves multiple changes, time, money and decisions that can be made which can only come from a company's top leadership (Johnson, 2010b).

This mobilisation step can be considered as the starting point of the framework.

Input: The decision to start with a Top-Down innovation strategy.

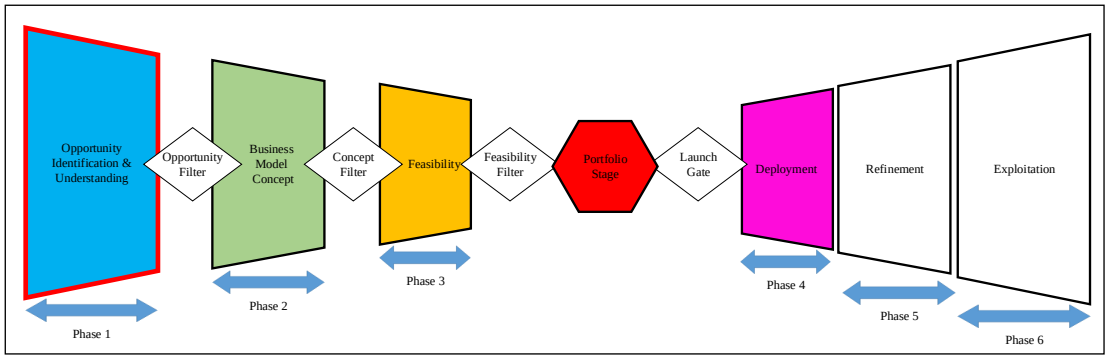
Actions:

- Obtain the necessary backing from company executives.
- Obtain the necessary team, resources and money.
- Define the timeframe of the project.
- State the project goal/purpose/vision.
- Understand how the framework works to brief team members.
- Create a separate detached business unit.

Output: The output leads directly to Phase 1.

Section 6.3.2 enters the Phase 1 of the High-Level Phase Model wherein the framework situated within this phase is described.

6.3.2 Phase 1: Opportunity Identification and Understanding



The framework situated within Phase 1 can be seen below in Figure 6.5.

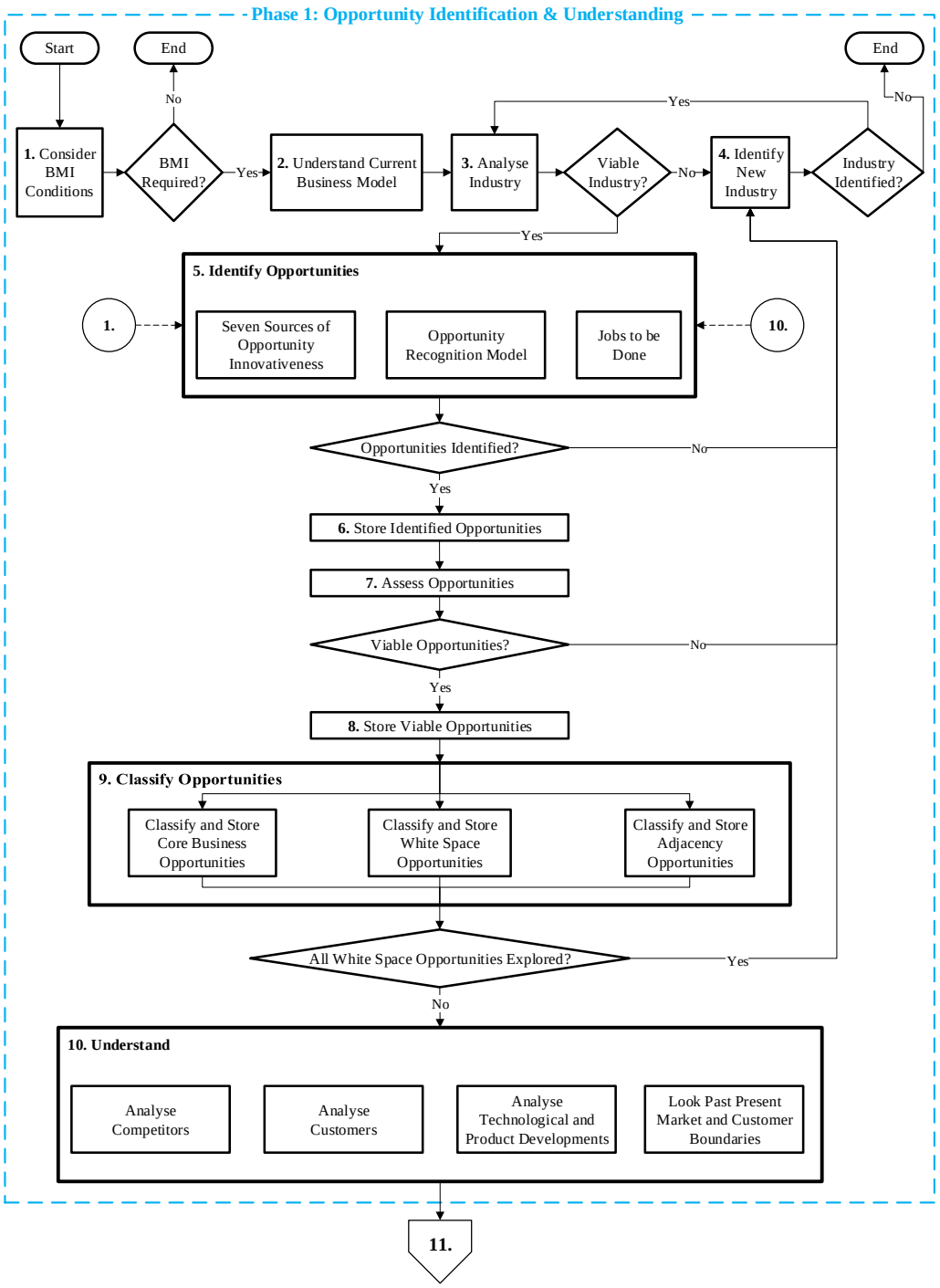


Figure 6.5: Framework situated within Phase 1.

Step 11 is not specifically situated in Phase 1 and is hence contained in an off-page reference symbol. Phase 1's step content can be seen in Appendix T, and will be appropriately referenced to and described in this section.

Phase 1 starts off with a list of questions that should be considered, involving the conditions for BMI followed by an understanding of the framework user's current business model. It then consists of identifying, assessing, ranking and classifying market opportunities as white spaces. These white space opportunities then go through an extensive understanding process in Step 10. Section 6.3.2.1 to Section 6.3.2.10 will describe Step 1 to Step 10 in Figure 6.5 respectively.

6.3.2.1 Step 1: Consider BMI Conditions

Objective: The objective of Step 1 is to determine whether the user should make use of the framework or not. It acts as a trigger.

Motivation: Since BMI is the central theme of this study and of the framework itself, the conditions that trigger a BMI process is a logical starting point. According to Giesen *et al.* (2010) very few companies know when a change to their business model is required. The BMI conditions were generated from Section 2.3.7, by taking the BMI condition table from Giesen *et al.* (2010) and categorising Osterwalder & Pigneur's (2010) BMI conditions into the table itself, resulting in a more comprehensive list of conditions which can be seen in Table T1 in Appendix T.

Input: Input consists of the information from the Phase 0 and the external and internal drivers from Table T1.

Actions: All the questions within Table T1 should be considered.

Output: A decision should be made whether BMI is required or not:

- Yes: If the answer to any of the questions in Table T1 is *Yes*, BMI is required which will instigate the use of the framework. The process output feeds into Step 2.
- No: If *No* is answered to all of the questions, it is not necessary for the user to utilise the framework. Therefore, the framework process ends.

6.3.2.2 Step 2: Understand Current Business Model

Objective: To create a clear understanding of the user or parent company's current business model.

Motivation: Johnson (2010a) made it very clear that most businesses do not understand their own business model. Osterwalder & Pigneur (2010) stated that any BMI process should start with a good understanding of a business model, which was supported in design guideline $HL3_3$. Additionally, the first tool in the second phase of Geterud & Tegern's (2012) BMI Tool Framework and the first step in Lingardt and Reeves's Circular BMI process included analysing the company's current business model.

By executing Step 2, firms will be able to comprehend better whether they can use their own business model to capture a new market opportunity, or whether the opportunity is a white space which requires a new business model, which will be determined in Step 9. Additionally, it gives them essential knowledge as to what a business model is, which is vital to understand and use the framework. Finally, the Business Model Canvas was chosen as the tool for Step 2 due to its popularity and tangibility.

Input: Input from Step 1 does not directly influence Step 2, however it acts as the trigger for Step 2 to be executed.

Actions: The parent company using the framework should understand the Business Model Canvas theory. They can use the Business Model Canvas template given in Appendix C to assist them in understanding their own business model.

Output: Once the firm has understood their own business model, the output is generated - which leads directly to Step 3.

6.3.2.3 Step 3: Analyse Industry

Objective: To analyse a potential industry to see if it is viable to enter and explore for market opportunities or not.

Motivation: As mentioned, according to Prof Ungerer from the USB, opportunities are traditionally found within industries (Ungerer, personal communication, 28 July 2017). Certain opportunities might look much more promising than what they really are. As an example, an opportunity could look very favourable, however the industry in which it is situated could have a very high concentration of competition or be in its declining phase in its life cycle. Thus, resulting in an industry that should rather be avoided. Therefore, it is important to choose and analyse an industry first before pursuing an opportunity.

Step 3 serves as a starting point for a firm to analyse its current industry which will be used to start searching for opportunities that can then be classified as white spaces. This industry analysis stems from Section R.3.3 in Appendix R.

Input: Input from Step 2 does not directly influence Step 3, but it does serve as a guide towards Step 3. Step 3 also receives input from Step 4. In Step 4 a new industry is chosen, which does have a direct influence on Step 3 as to which industry will be analysed.

Actions: The parent company should execute an industry analysis on their current industry.

Output: A decision should be made whether the industry is viable or not:

- Yes: The industry analysis for that specific industry was deemed as positive and viable. The parent company proceeds to go ahead with the framework process to Step 5.
- No: The industry that was analysed was not suitable or viable. Therefore, a new industry should be identified in Step 4.

6.3.2.4 Step 4: Identify New Industry

Objective: To identify a new industry for analysis.

Motivation: The inclusion of Step 4 ensures that a continual exploration process for new industries and therefore opportunities are made possible within the framework.

Input: Step 4's input comes from a *No* output generated from the decision-making points after Steps 3, 5 and 7, as well as a *Yes* output after Step 9. This is due to either an industry analysis, opportunity identification or opportunity assessment being unsuccessful, or after all white space opportunities have been explored.

Actions: The parent company should identify a new core, related or unrelated industry.

Output: A decision should be made whether a new industry was successfully identified or not:

- Yes: A new industry was successfully identified and therefore the output leads back to Step 3 for the industry to be analysed accordingly.
- No: A new industry could not be identified and therefore the framework process comes to an end.

6.3.2.5 Step 5: Identify Opportunities

Objective: To identify a set of possible opportunities within the chosen and approved industry.

Motivation: A possible opportunity must first be identified before it can be classified as a white space. The Seven Sources of Opportunity Innovativeness, Opportunity Recognition Model and JTBD were three of the main components discussed in the literature review that were specifically orientated around identifying market opportunities.

Since Step 1 contains the internal and external drivers for innovation present in an opportunity, it was subjectively decided to include it as a reference input into Step 5. Additionally, Hansen & Birkenshaw (2007), Frankenberger *et al.* (2013), Osterwalder & Pigneur (2010), as well as Linkard & Reeves (2011) mentioned that opportunities can be identified through gaining an understanding, and therefore Step 10 also has a reference input. Step 10's reference input aims to initiate an initial high-level of understanding at this point in the framework. The variety of actions around Step 5 are supported by the Du Preez & Louw (2008) who state that market opportunities can result from focussed processes or by chance.

The seven sources of opportunity innovativeness and Step 1 and 10's inputs are sources from which opportunities mainly arise from. The opportunity recognition model serves to assist the actual identification of opportunities within Step 5, while the JTBD technique aims to identify the actual job of the customer within the opportunity.

Input: Step 3's output has a direct influence on the input into Step 5, as to which type of industry is to be explored for possible opportunities. The type of industry can determine the amount of possible opportunities, as well as opportunity characteristics. Alternatively, a reference to Step 1 and 10 also has an input.

Actions: Step 5 presents the following actions as options to be executed:

- Identify opportunities by considering the seven sources of opportunity innovativeness listed in Section 3.3.1.2.
- Utilise and implement the opportunity recognition model framework shown in Figure 3.14 in Section 3.3.2.
- Execute the following five steps of the JTBD technique as explained in Section R.2.2.1: 1) Identify a target market, 2) Job identification, 3) Job categorisation, 4) Job statement creation and 5) Job prioritisation.
- Consult Step 1.
- Consult Step 10 in a high-level manner.

Output: A decision should be made whether any opportunities were identified or not:

- Yes: One or more opportunities were identified. The output leads towards Step 6.
- No: No opportunities were identified, therefore a new industry should be chosen. The output follows a feedback loop back towards Step 4.

6.3.2.6 Step 6: Store Identified Opportunities

Objective: To pool together and store all opportunities identified in Step 5.

Motivation: According to Du Preez & Louw (2008), identified opportunities should be stored for potential future reference and re-use. Step 6 is a small step for structural purposes which assists the framework flow, referencing, understanding, and brings about a neater organisational component to the framework by pooling the opportunities together before Step 7 is executed.

Input: All the opportunities that were identified in Step 5, lead directly into Step 6.

Actions: There are no specific actions to be executed. All identified opportunities are to be pooled together and stored.

Output: The output consists of the pool of opportunities and leads directly to Step 7.

6.3.2.7 Step 7: Assess Opportunities

Objective: To assess all opportunities to identify which are suitable and unsuitable for further exploration.

Motivation: Clarity is required as to which identified opportunities are suitable for further exploration along the framework. Step 7 aims to filter out all the non-promising opportunities.

Input: The pool of stored opportunities in Step 6 all lead directly into Step 7.

Actions: The parent company should use the Opportunity Assessment Framework and execute an external, financial and internal analysis of each opportunity. Additionally, every opportunity should be ranked, based on Step 7's assessment using the parent company's judgement, from the most to the least promising. This ensures that the most important opportunities are pursued first as well as contributing an organisational factor to the framework. This ranking feature follows through to Step 9.

Output: Two possible outputs can result from Step 7:

- Yes: One or more opportunities are deemed suitable for further exploration. These opportunities lead directly into Step 8.
- No: No opportunities were deemed viable for further exploration in Step 7. Therefore, the output leads back to Step 4 to identify a new industry.

6.3.2.8 Step 8: Store Viable Opportunities

Objective: To pool together and store all viable market opportunities.

Motivation: Step 8 serves the same purpose as Step 6 in terms of structure, organisation, referencing and understanding.

Input: All the suitable and ranked opportunities from Step 7.

Actions: There are no specific actions to be considered.

Output: Step 8's output consists of the pool of viable ranked opportunities that lead directly into Step 9.

6.3.2.9 Step 9: Classify Opportunities

Objective: To classify and store all the viable opportunities from Step 8 as either a core, white space or adjacency opportunity.

Motivation: The pool of viable opportunities should be classified into their different types to know how to handle each opportunity, and more specifically to capture a white space opportunity.

Input: The pool of ranked opportunities that are viable for further exploration from Step 8.

Actions: Each viable opportunity should be classified as either a core, white space or adjacent opportunity using the following conditions:

- Core Business Opportunity Condition: The opportunity can be addressed by utilising the current business model, coupled with the fact that existing customers are attended to in traditional ways.
- White Space Opportunity Conditions: If one or more of the following conditions are found to be true below, the opportunity is classified as a white space.
    - The parent company must alter their Profit Formula. This is especially true regarding changes to the overhead cost structure and the resource velocity.
    - The parent company must develop a new big set of Key Processes and Key Resources.
    - The parent company must generate profoundly dissimilar central rules, norms and metrics.
- Adjacency Opportunity Condition: The opportunity can be addressed by utilising the current business model coupled with serving a set of brand new customers or existing customers in a profoundly different manner.

Output: The only output from Step 9 is from the 'Classify and Store White Space Opportunities' action since this research study focuses only on white space opportunities. Additionally, a decision should be made by considering whether all the white space opportunities have been explored or not:

- Yes: All white space opportunities have been explored and therefore an attempt should be made to identify new ones. The output leads back to Step 4.
- No: There are still white space opportunities stored within Step 9. The output consists of the highest ranked white space opportunity that leads directly into Step 10.

6.3.2.10 Step 10: Understand

This step aims to obtain an in-depth understanding of the top ranked white space opportunity within Step 9. Step 10 is described in terms of a Top-Down innovation strategy, where it is assumed that no physical product, service or solution yet exists for the customers JTBD. For that reason, certain tools,

which consider a current Value Proposition, had to be slightly altered where they consider the competition's solution instead.

A special tool description format, as designed by Geterud & Tegern (2012), is followed for Step 10 and the rest of the proposed framework where necessary to give more context to certain tools. The tool description format is as follows:

- Purpose: States what the tool wants to achieve.
- Methodology: Explains the method to be used for that specific tool.
- Time requirements: The time required to complete the tool.
- Preparation: Describes what work needs to be done before executing the actual tool.
- How section is performed: Describes the steps required to complete the tool.

The above format was also generated for tools that do not stem from Geterud & Tegern's (2012) framework, to keep with a consistent homogenous tool format. Time requirements were estimated for these tools.

Objective: To obtain an in depth understanding of the white space opportunity.

Motivation: An in depth understanding of the white space opportunity is required to guide the business model design process.

Input: The input consists of the most promising white space opportunity from Step 9.

Actions: The following actions are presented as options to be executed:

- Analyse Competitors.
- Analyse Customers.
- Analyse Technological and Product Developments.
- Look Past Present Market and Customer Boundaries.

Table 6.7 below illustrates the different tools found within each of the actions in Step 10.

Table 6.7: Different tools found within Step 10's actions

Analyse Competitors	**Analyse Customers**	**Analyse Technological & Product Developments**	**Look Past Present Market and Customer Boundaries**
Product Characteristics	Customer Insight	Life Cycle Analysis	Six Paths
Overview of Applications	Buyer Utility Map	Trend Analysis	
Competitive Environment	Consumer Trend Canvas		
Nine Block Business Model Canvas	Outcome expectations		
Value Proposition Canvas	Kano Model		
Porter's Five Forces	Ethnography		
	Empathy Canvas		
	Value Proposition & Customer Alignment		

Output: The understanding step is the final step of the framework situated within Phase 1. Therefore, the output leads to the end of the process within Phase 1 only, and leads to Step 11 in Phase 2.

The following subheadings will describe the four main actions in terms of their objectives, motivation and specific actions only.

Analyse Competitors

Objective: To understand the competitors' products, the competitive environment surrounding the white space opportunity as well as to plot the competitors' business models.

Motivation: According to Markman & Phan (2011), the intersection of market entry and competitor analysis is an important area of research. However, Porter (2008) states that it is common for a firm's top management not to define and consider competition in a broad enough way. Additionally, a competitor analysis serves as an excellent point for a firm to recognise how it can differentiate itself (Geterud & Tegern, 2012).

Actions: Some of the tools used within this section stem from Geterud & Tegern's BMI Tool Framework. However, the tools that they developed are utilised in such a way that they should be used in conjunction with a firm's current business model. Since at this point in the framework no new business model has been designed yet for the white space opportunity in question, the tools (where applicable) were altered in such a way that the competitor's business models take place of the firm's current business model instead.

The parent company utilising this framework does of course have a current business model it has been utilising before starting the framework, but not a business model as yet for the chosen white space opportunity. It is important to distinguish between these two concepts. Finally, the order of the tools, as suggested by Geterud & Tegern (2012) in their framework, is followed within this step and others to keep with literature structure. All the tools used within this step, as listed below, can be found in Appendix T under Section T.2.

1. **Product Characteristics:** A thorough understanding of a product's characteristics can assist a firm to generate new innovations as well as discover new uses for the product itself (Geterud & Tegern, 2012). This first tool, seen in Figure T1, was initially designed by Geterud & Tegern (2012) to analyse a firm's current product characteristics for an opportunity. Since no product exists yet for the chosen white space opportunity assuming Top-Down innovation, this should be used to analyse competitor's product characteristics.

2. **Overview of Applications**: Recording the various applications of a product deepens the understanding of the product being used, in which areas it is being used, as well as laying an initial platform for the product analysis (Geterud & Tegern, 2012). For the same reasons as the Product Characteristics tool, this second tool should be executed for competitor products. This tool can be seen in Figure T2.

3. **Competitive Environment:** The analysis of an opportunity's competitive environment serves as a good standard for the current competition, as well as creating ideas on how a firm can differentiate itself from its competitors. This tool, illustrated in Figure T3, analyses the competitive surroundings, with a focus on the competitor target sectors, delivery networks, pricing policies and recognising prominent practices. No physical changes were made to this third tool.

4. **Competitor's Business Models:** According to Geterud & Tegern (2012), a competitor's business model should be mapped from an early stage. This fourth tool, seen in Figure T4, stems directly from Geterud & Tegern's (2012) 'Current Business Model' tool, except for some wording within the tool that has been altered to focus on competitor business models instead of focussing on the parent company's current business model.

   If a firm understands and plots all the competitors' business models, it will greatly assist them in designing their own unique business model for that opportunity (Osterwalder & Pigneur, 2010). This fourth tool should be executed for every identified competitor. Step 12, which is described in Phase 2, can also be consulted for valuable additional assistance to recognise common business model patterns which are used.

5. **Competitors Strategic Value Proposition Canvas:** This fifth tool imitates the Strategy Canvas described in Section R.1.1. The 'Value Proposition Canvas' tool from Geterud & Tegern (2012) was initially designed in a very complex and detailed manner in terms of how the tool should be executed and performed. Therefore, the tool description was shortened and simplified, and the table headings were altered to be more direct as seen in Figure T5. Additionally, a new strategic value proposition canvas graph, illustrated in Figure T6, was generated to work in conjunction with the new altered table. However, the objective and purpose of the tool has not changed.

6. **Porter's Five Forces:** This tool was additionally added to ensure that a firm defines its competition in a broad enough manner. The tool description was generated in line with Geterud & Tegern's (2012) description format as seen in Figure T6. The specific tools used in Figure T7 and T8 is taken from Dobbs (2014), who designed a practical user-friendly template.

Analyse Customers

Objective: To gain a better understanding on the current customer environment within the white space opportunity, identify the true customer value as well as understand the customer itself better.

Motivation: It is important for a firm to understand their customer in depth as was seen from the large amount of final customer orientated design guidelines. The customers determine what type of solution, and therefore what type of business model, is required. Additionally, Johnson (2010b) believes that business success in today's day and age comes from the outside in – from the customers to the firm.

Actions: A total of eight tools are to be considered during this step. The first two tools, *Customer Insight* and *Buyer Utility Map* stem from Geterud & Tegern's (2012) framework, while the rest of the tools follow the suggested sequence of the Customer-Centric New Product Development Model described in Section R.2.

In terms of customers, a white space opportunity either involves a new or existing customer base (Johnson, 2010b). As explained before, all questions relating to products should be answered for competitor products. The eight tools that fall under the customer analysis can be seen in Appendix T from Section T.3.1 to T.3.8 respectively.

1. **Customer Insight:** This first tool, which aims to identify the true customer value of the product or service, described in Figure T9, consists of two tables that need to be filled out in Figures T10 and T11. Geterud & Tegern (2012) state that the information obtained from

this tool lays the base for identifying new possible innovations and choices regarding the reinvention of the current business model – or in the case of this research study, designing a new business model.

2. **Buyer Utility Map:** Like the customer insight, this second tool also aims to find the true customer value that the product or service creates. The tool considers 8 different buyer utility levels and then looks across 7 different life cycle phases to assess where the customer value is generated. Geterud & Tegern (2012) found the original Buyer Utility Map from the Blue Ocean Strategy insufficient and then designed the one seen in Figure T12, T13 and T14.

3. **Consumer Trend Canvas:** The consumer trend canvas assists a firm in gaining a deeper understanding of customer needs and desires by analysing a certain customer trend. By understanding a customer's need at a specific point in time, it assists the understanding of why a customer might be motivated to obtain that specific solution. The tool description and table in Figure T15 was generated by analysing the Consumer Trend Canvas in Section R.2.1.2.

4. **Outcome Expectations:** This fourth tool, seen in Figure T16, identifies the desired and undesired expectations that originates from a product or service. This outcome expectation identification process ensures that the product development process contains a centric point where the focus is on the customer. The tool description and table were generated by analysing the outcome expectations description in Section R.2.2.2.

5. **Kano Model:** While the outcome expectations process complements the JTBD technique, the Kano model complements the outcome expectations method. It considers the customer's satisfaction in terms of the products functionality. This assists the firm in realising which product functions and requirements contribute a positive or negative role, from the viewpoint of the customer. The Kano Model tool and description, which was generated by assessing Section R.2.2.2, can be seen in Figure T17.

6. **Ethnography:** The Oxford Dictionary describes *Ethnography* as the systematic study of people and their cultures (Oxford, 2017). This sixth tool ensures that firms consider an important quantitative and qualitative aspect to the customer analysis. The Ethnography tool and description, which was generated by assessing Section R.2.2.3, is illustrated in Figure T18.

7. **Empathy Canvas:** Johnson (2010b) states that it is important to consider *social* and *emotional* aspects during the exploration phase, due to that fact they often dominate the purchasing decisions of a customer. The empathy canvas considers these aspects by analysing what a customer thinks, feels, hears, says, does and sees. The table and its questions, seen in Figure T19, was generated from the questions asked on the Empathy Canvas as designed by Romero & Molina (2015).

8. **Value Proposition and Customer Alignment:** This tool focuses on aligning the features of the Value Proposition with the Customer Segment and has therefore been renamed for clarity purposes from its original name 'Value Proposition Design'. Figure T20 was generated by analysing Section R.2.2.4.

Analyse Technological and Product Developments

Objective: To identify the product and technological positions on their lifecycles within the white space opportunity. Moreover, to obtain a better understanding of the different types of technological and product trends, and the associated drivers and barriers that influence these developments.

Motivation: Osterwalder & Pigneur (2010) required only an understanding of the development of technology within their understanding stage. Romero & Molina's (2015) lifecycle analysis included a product, industry and technology analysis. Since an industry analysis was done in Step 3, a product lifecycle analysis was added to achieve a more comprehensive understanding.

The product and technological lifecycles were discussed in the Retro and Prospective Analysis in Section R.2.1.2. Romero & Molina (2015) states that these lifecycles are required to build a business case. The trend analysis assists the understanding of how the technology or product is developing, as well as identifying important drivers, barriers and impacts that can assist in designing a new business model.

Actions: The tool to be utilised can be found in Appendix T under Section T.4 in Figure T21. The Life Cycle Analysis tool was generated from the generic lifecycle by analysing Section R.2.1.2. The Trend Analysis stems from Geterud and Tegern's 'Trends and Drivers' tool. The tool description was generated in line with both tools.

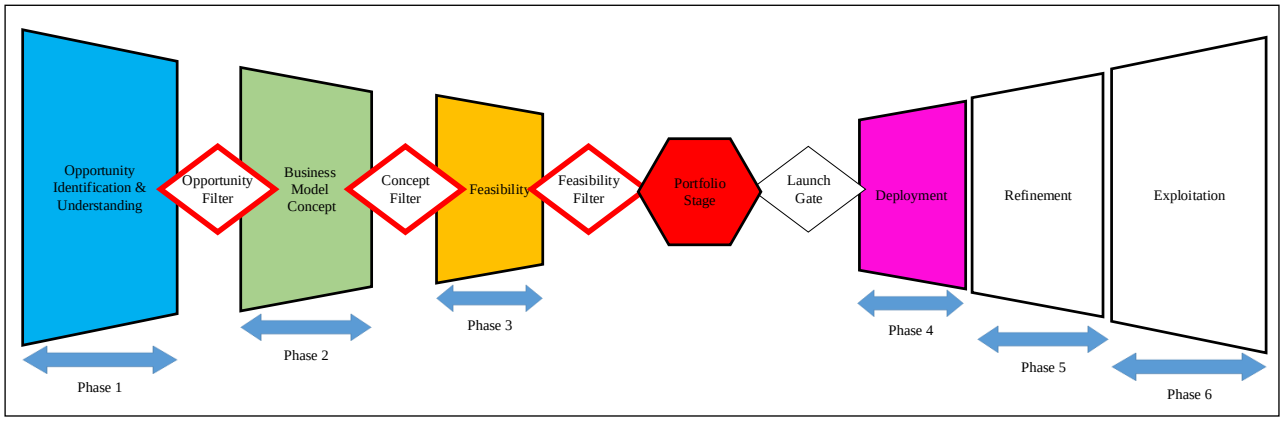
Look Past Present Market and Customer boundaries

Objective: To identify innovative ideas, new competitive terms as well as possible blue oceans by considering a wide spread look over various opportunity factors and components.

Motivation: The execution of this step completes the understanding phase as laid out by Osterwalder & Pigneur (2010), in their Five Stage BMI Process.

Actions: A tool that is suitable for looking across present market and customer boundaries is the *six paths tool*, as designed within the Blue Ocean Strategy. This tool can be seen under Section T.5 in Figures T22, T23 and T24 as designed by Geterud & Tegern (2012). No changes were made to this tool.

6.3.3 Opportunity, Concept and Feasibility



In terms of Bottom-Up innovation, the opportunity, concept and feasibility filters act as a request to the firm's management and leadership for mobilisation to occur for the first time. This mobilisation is identical to the mobilisation described for Top-Down innovation in Section 6.3.1.2, where a business case can be made and presented to obtain the firm's approval to go ahead with mobilisation.

Similarly, for Top-Down innovation, these filters act as points where the project team can make requests to the firm's management and leadership for additional mobilisation components, such as more team members, time, money and other resources. If the firm's management and leadership are satisfied with the Phase, they will approve the request for additional resources made in the filters. If the requests are rejected, the project team can either build a stronger case by going back to one of the previous phases, or they can continue onto the next phase - after which another request can be made in the following filter.

It should be noted that the opportunity, concept and feasibility filters are not definite and compulsory decision-making points within the framework and can be skipped in the process if required as shown in Figure 6.6 below. The funnel part contains a very flexible process, however the bugle part, is less flexible and more structured due to it requiring more definite decision-making points. The flexible funnel process is illustrated below in Figure 6.6

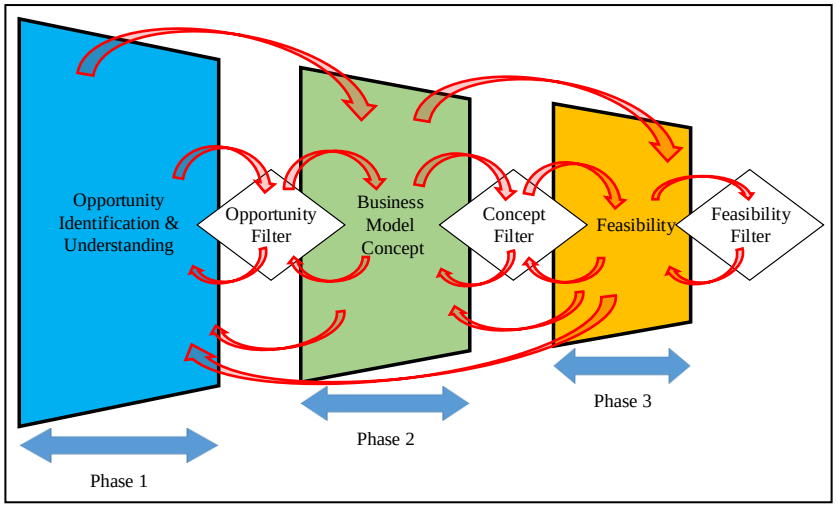
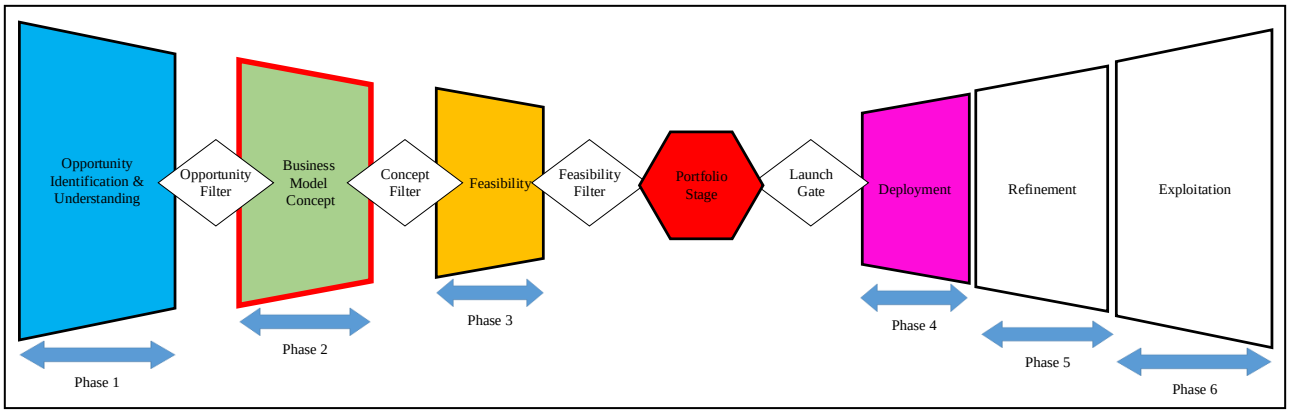


Figure 6.6: The flexibility of the High-Level Phase Model's funnel

6.3.4 Phase 2: Business Model Concept



In Phase 1, a white space opportunity was identified and understood. Phase 2 entails the initial design process of appropriate new business model concepts for that white space opportunity. The framework situated within Phase 2 can be seen on the following page in Figure 6.7.

Johnson's (2010b) description of the design of a business model blueprint, using his Four Box Business Model, form the sub-steps in Step 11. Step 2 was subjectively included as a reference input, so that if specific aspects of the parent organisation exist that can be utilised in the new business model, these aspects are recognised without the need to outsource or design new ones. Step 12 consists of the 55 Business Model Navigator Patterns.

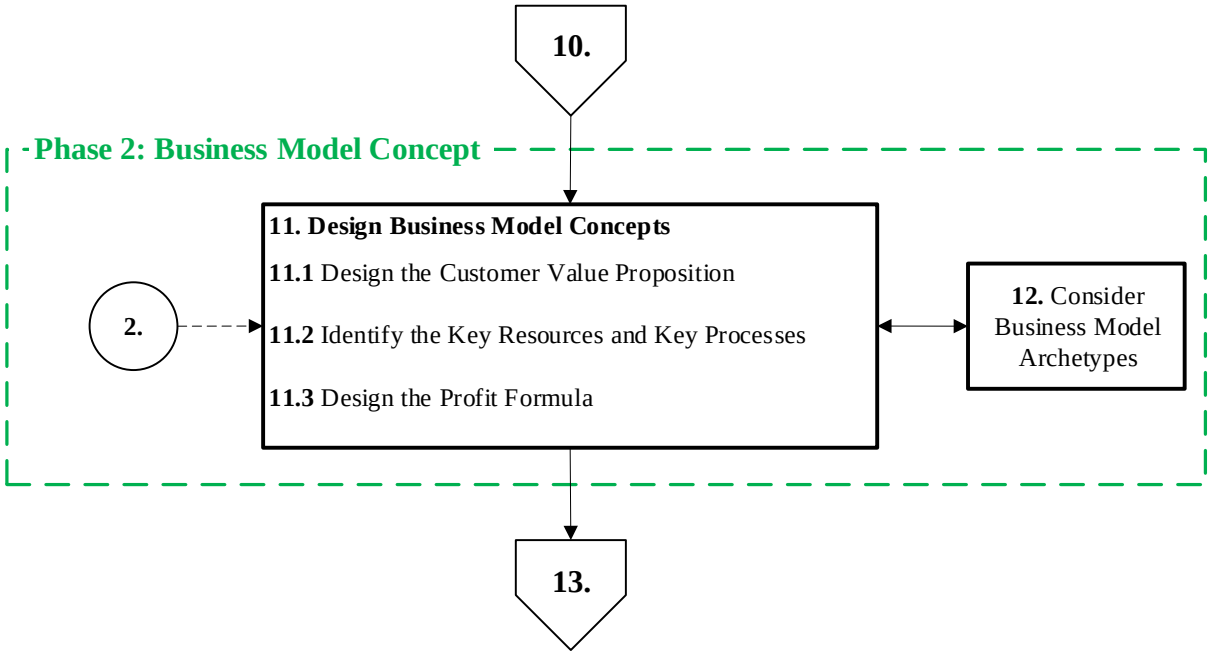


Figure 6.7: Proposed framework situated within Phase 2.

Osterwalder & Pigneur (2010) and Johnson (2010b) stress the fact that the initial design phase must be kept at a basic level, due to that fact that various problems will be encountered in the future if the project team falls in love with an in-depth concept or idea too quickly. Finally, all tools within Phase 2 can be found in Appendix U. Tool descriptions were again generated in line with Geterud & Tegern's (2012) tool description format.

6.3.4.1 Step 11: Design Business Model Concepts

Step 11 is based on Johnson's (2010b) second step of his Repeatable BMI Process called *Construct a blueprint which sets out how you will do that job at a profit.* Johnson (2010b) states that initially the design process, based on his Four Box Business Model, is in the following order: 1) Design the Customer Value Proposition (CVP), 2) Design the Profit Formula and 3) Identify the Key Resources and Key Processes. From Chapter 5 however it was seen that the experts felt very strongly that the Profit Formula, in the form of a backward income statement, should be considered last in the design process. For that reason, the design process has the following sequence of 11.1 to 11.3 as illustrated in Figure 6.7.

Steps 11.1 to 11.3 are described by Johnson (2010b) on a simplistic and general manner. To address this, these three steps are executed in line with the Business Model Canvas, design guideline categories and the Ten Types of Innovation Framework to contribute additional detail and innovation to the generation of a new innovative business model at a building block level.

This design concept can be seen in Table 6.8 at the top of the following page. With the execution of each of the three design steps, the Business Model Canvas components will be individually designed with the assistance of the final design guidelines from Chapter 5. Finally, the Ten Types of Innovation are also considered for the generation of additional innovation within each business model building block.

Table 6.8: Components that should be considered during Step 11.1.

Design Step	**Four Box Business Model components**	**Business Model Canvas and Design Guideline Components**	**Ten Innovation Types**
11.1	Customer Value Proposition	Customer Segments; Value Proposition; Customer Relationships; $HL_{3.}$	Product Performance; Product System; Service; Customer Engagement.
11.2	Key Resources	Key Resources; Key Partnerships; Distribution Channels; HL_3.	Network; Structure; Brand; Channel.
11.2	Key Processes	Key Activities; HL_3.	Process
11.3	Profit Formula	Cost Structure; Revenue Streams; HL_3.	Profit Model

(Source: Johnson, 2010b; Osterwalder & Pigneur, 2010; Keeley *et al.*, 2013)

Input: All the information gained within the framework up to the end of Step 10 enters into Step 11 to be considered within the design process.

Output: All the business model concepts designed within Step 11 leave Phase 2 to be assessed and classified as prototypes in Phase 3.

The following sub-headings will explain Steps 11.1 to 11.3 in terms of their objectives, motivations and actions.

Step 11.1: Design the Customer Value Proposition

Objective: To design an appropriate CVP in line with the customers JTBD within the white space opportunity.

Motivation: Johnson (2010b) states that, "Designing a new model begins, of course, with the CVP." As mentioned, the CVP formula has the following sequence: 1) Identify an important JTBD that is poorly satisfied today for a customer and 2) Devise and develop an offering that does the job better than alternatives at the lowest appropriate price. The customers JTBD was identified in Step 5 and considered again within the customer analysis in Step 10. For the development of the CVP, Johnson (2010) only provides a small list of questions and levers which should be considered. To be more thorough with the CVP development, the House of Quality tool was utilised to assist in the generation of engineering specifications.

Actions: Johnson (2010b) states that not only must the *what* be considered in terms of the CVP, but also the *how*. The components that need to be considered are listed and explained in the list below. Additionally, the Business Model Canvas, Design Guidelines and Ten Types of Innovation components situated within the CVP should also be considered.

1. **CVP offering, access and payment scheme design:** Johnson (2010b) suggests the starting point of CVP design must be at a very basic level. He provides a list of questions which should be considered. Additionally, Johnson (2010b) provides examples of levers - which will assist in the CVP design process. The CVP design description, questions and levers can be seen in Appendix U under Section U.1.1 in Figures U1 to U4. He goes on to state that a firm could consider and generate numerous types of similar levers to assist the CVP design process further.

2. **Generate offering specifications:** The House of Quality, seen under Section U.1.2 in Figure U5 and U6, is a well-known tool that can translate customer requirements into engineering

specifications. The tool description in Figure U5 was generated by analysing how a House of Quality is executed. The Competitor Analysis and Customer Analysis actions in Step 10 can be consulted for additional assistance.

Step 11.2: Identify the Key Resources and Key Processes

Objective: To identify the required Key Resources and Key Processes to convey the CVP.

Action: Due to the design guideline feedback from Chapter 5, the Key Resources and Key Processes will not be identified from the backward income statement as required by Johnson (2010b), but rather be identified by using the design guidelines. At this early stage of the design process, only some of the Key Resources and Key Processes will be able to be identified. However, they will become more important and detailed once iteration takes place (Johnson, 2010b).

Actions: The Key Resources and Key Process components from Table 6.8 that are in line with the Business Model Canvas, Design Guidelines and Ten Types of Innovation should be considered.

Step 11.3: Design the Profit Formula

Objective: To design the economic blueprint that defines how the company will create value for itself and its shareholders by generating a backward income statement and executing an appropriate financial analysis.

Motivation: Johnson (2010) suggests a very loose and flexible process wherein a wide set of financial projections and reasonable assumptions are generated that are to be tested, altered and verified by going through an iteration process during the implementation stage. He goes on to state that if a Profit Formula is set in stone at a stage that is too early, the firm will make incorrect compromises when changes occur. Johnson (2010b) only lists a few questions and briefly describes the reverse income statement process.

Therefore, to be more comprehensive, detailed and to fully utilise the backward income statement's potential, a simulated backward income statement and ratio analysis was generated. Step 11.3 and Section U.2 in Appendix U was validated by Mr Arthur Bishop, who is a senior management accounting lecturer at Stellenbosch University. The Profit Formula design is in line with his agreement and recommendations (Bishop, personal communication, 4 September 2017).

Actions: Johnson (2010b) states that to generate a viable Profit Formula, a reverse income statement must be produced with generated assumptions. Johnson (2010b) suggests that the operating profit, also known as earnings before interest and tax or EBIT, must be first determined and then the firm must work backwards to obtain the revenue model, cost structure, target unit margin and finally the resource velocity. These Profit Formula components that were described in Section 2.2.3.2 lists all the available information that Johnson provides. All tables and equations in Section U.2 were additionally generated by the author except for Table U1, Table U4 and Equation U12 which stems from Johnson (2010b). Johnson (2010b) only briefly states the steps but does not elaborate in detail on how the steps should be executed and which equations are required. This section aims to clarify this process.

Section U.2 follows Johnson's (2010b) explanation but it is more in depth, detailed and with additional components. The process starts by leading the user to work out the gross profit firstly in Section U.2.1. Johnson (2010b) provided questions in Table U1 to define quantity. Although not explicitly given by Johnson (2010b), Equation U1 was generated from Table U1.

According to Johnson (2010b), the direct costs consists of direct materials and direct labour. Table U2 was created with questions to obtain the required direct cost answers after which Equations U2 and U3 was generated to illustrate how to calculate Total Cost of Goods Sold. Since the JTBD should be satisfied at the lowest appropriate price according to Johnson (2010b), and the goal of any public and private company is to obtain a competitive advantage (Ungerer, personal communication, 28 July 2017), it will assist to know the prices of the other competitor's products to determine the price at which the newly designed offering should be sold at. For this reason, Table U3 was created and supported by Mr Bishop, to serve as a selling price benchmark (Bishop, personal communication, 4 September 2017). By taking Table U3's answers into account, as well as making sure the selling price is at least equal to or bigger than the cost per unit from Equation U2, the lowest appropriate competitive selling price per unit can be estimated or calculated in generated Equations U4 and U5. Finally, the estimated total sales and gross profit is calculated through generated Equations U6 and U7.

Section U.2.2 aims to calculate the Target Unit Margin by working backwards from the net profit to the EBIT. The required net profit to make the white space opportunity valuable enough, instead of the required EBIT as suggested by Johnson (2010b), was decided to be used to start the backward income statement process. This was done since there could be a real possibility that the project team could require a loan, which has interest tax expense, to obtain additional money and resources at any stage through time or if the parent company from an early stage refuses to sponsor them within the High-Level Phase Model's filters.

Additionally, income tax can vary greatly depending in which country the newly generated white space business model will be situated in (Bishop, personal communication, 4 September 2017). Therefore, by estimating the net profit it considers two very important and influential expense components which would otherwise have been eliminated. The question in Table U4 was adjusted slightly from Johnson (2010b) to accommodate the net profit instead EBIT. To assist the answer to Table U4, the Customer Insight tool can be consulted which considered the profitability and Compound Annual Growth Rate (CAGR) of a customer segment for three years. Table U5 was generated to consider income tax percentage and interest expense. Equations U8 to U12 was generated to illustrate how to work backwards to calculate the Target Unit Margin.

A ratio analysis was included and explained in Section U.2.3. Financial ratios can be very useful to analyse the income statement, and more so if other competitor's financial information is readily available as is the case with public companies (Bishop, personal communication, 4 September 2017). Finally, these ratios can be used to compare and analyse the different newly generated business models from Step 11 to one another.

Sections U.2.1 to U.2.3 only illustrate the process and equations required to design the Profit Formula. Section U.2.4 contains a simulated income statement with associated input and output information which was generated in Microsoft Excel by the author as an additional tool. The equations listed in Section U.2.1 to U.2.3 were used to link the cells to one another in each table which resulted in an easy and quick to use Profit Formula design tool. This tool can be used to assess various scenarios and cases by changing the input information in Table U6 for each specific scenario or case, which will result in the income statement and output information tables, Table U7 and U8 respectively, changing in accordance to these changes.

This financial simulation tool results in a more flexible, visual and tangible Profit Formula. The common size column in the income statement expresses every cell as a percentage of sales. This allows for a common size analysis between the income statements of competing companies and can also be used to assess and compare newly generated businesses model concepts to one another

(Bishop, personal communication, 4 September 2017). The expenses listed under the operating expenses heading in Table U7 serve as possible examples of different types of operating expenses.

Finally, Section U.2.5 determines the Resource Velocity of the business model. The questions in Table U9 were generated by taking the core concepts surrounding the Resource Velocity description in Section 2.2.3.2.

6.3.4.2 Step 12: Consider Business Model Archetypes

Objective: To act as a source of inspiration, understanding and ideas during the Phase 2.

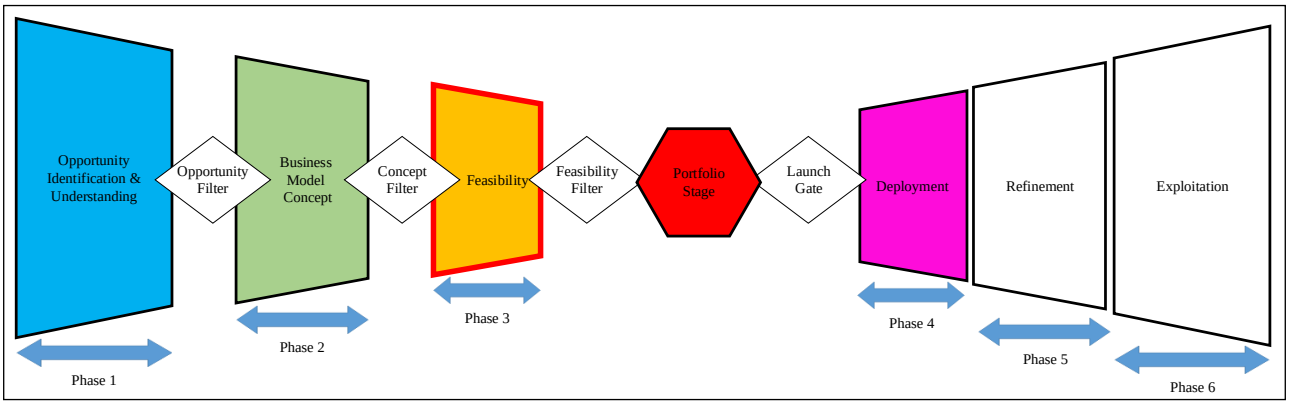
Motivation: Osterwalder & Pigneur (2010) encourage the use of business model patterns during the design phase. They state that a single business model can contain numerous patterns and that these patterns act as a source of stimulation and assist in a deeper understanding, which will assist the design of business model concepts. Bonakder (2015) and Gassmann *et al.* (2014) supported this source of stimulation and idea generation with the 55 Business Model Navigator patterns. Finally design guideline $HL8_3$ stated: Consider other business model patterns/archetypes in every building block.

Osterwalder & Pigneur (2010) only generated five different patterns within their research. The Business Model Navigator contained 55 business model patterns, as explained in Section R.3.4, and was therefore chosen as the pattern tool of choice due to its more in-depth content.

Input/Output: Step 12 can give and receive feedback from Step 11 so that it can act as an interplay mechanism as well as a flexible source of inspiration, understanding and ideas throughout the entire design.

Actions: Consider the list of 55 business model patterns.

6.3.5 Phase 3: Feasibility



Phase 2 entailed the possible design of several business model concepts that could be appropriate for the chosen white space opportunity. Phase 3 involves converting these concepts into prototypes, assessing these prototypes and deciding whether they are feasible or not.

This feasibility stage aims to assist the user of the framework to store, evaluate and compare the designed business model concepts followed by a selection of the final business model to be used for the white space opportunity. It plays an important role within the framework since it has the responsibility to highlight any potential mistakes, pitfalls or areas requiring alterations within the business model prototypes. The framework situated within Phase 3 can be seen in Figure 6.8 at the top of the following page.

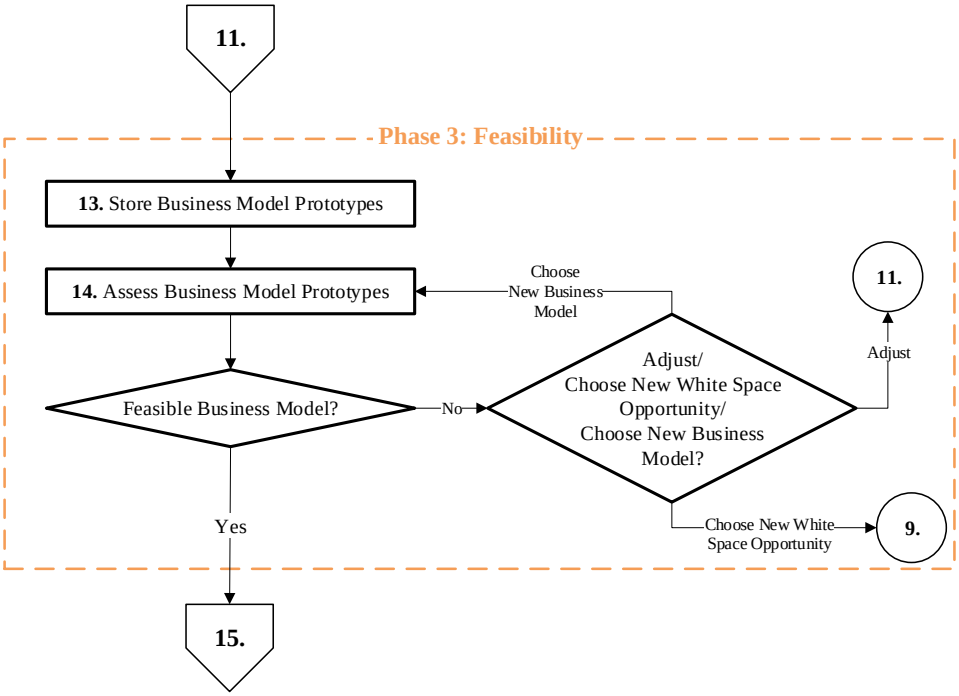


Figure 6.8: Framework situated within Phase 3.

Phase 3 consists of steps 13 and 14, where Step 14 is the main focus. Step 13 and Step 14 are explained in further detail in Sections 6.3.5.1 and 6.3.5.2 respectively.

6.3.5.1 Step 13: Store Business Model Prototypes

Objective: To capture the designed business model concepts from Phase 2 and generate a tangible Value Proposition prototype.

Motivation: Osterwalder & Pigneur (2010) state that a business model prototype can take the form of either a rough sketch, a business model canvas describing a well thought out understanding phase or a spreadsheet simulating the finances of the firm. The output from Step 11 resulted in a combination of the latter two: innovative Business Model Canvas concepts containing a simulated financial statement within its Profit Formula – resulting in more thorough business model prototypes. The business model concepts are made clearer and more distinct by separating it and putting it into its own framework block within Step 13. It also highlights and stores the important output from the Step 11.

Romero & Molina (2015) state that once the initial design of a product is complete, it is followed by a quick and dirty prototyping step, as described in Section R.2.3.3. This early prototyping process is an inexpensive and fast method wherein the Value Proposition can be refined before a capital intensive and functional prototype is executed. The Value Proposition prototype is specifically mentioned in Step 13, to highlight the fact that a physical Value Proposition exists for the first time for the white space opportunity. Recall in Step 10 that the project team did not have their own Value Proposition at that point in time.

Input: The business model concepts from Phase 2.

Actions: The designed business model concepts are labelled and stored as prototypes. Additionally, a prototype Value Proposition is created and tested by performing the following actions: paper prototyping, scale modelling, scenario testing, experience prototyping and by 'trying it yourself'.

Output: The output consists of the business model prototypes which is inserted into Step 14 to be assessed accordingly.

6.3.5.2 Step 14: Assess Business Model Prototypes

Objective: To assess and understand the feasibility of the business model prototypes.

Motivation: Osterwalder & Pigneur (2010) describe that a business model prototype must not be considered as a draft version of what the real business model could be. Rather, the prototype must be an entity that requires refinement, as well as a tool for the firm to explore different avenues. The generation of a business model prototype ensures that various issues concerning the assembly, relationships and rationality of the prototype are considered which cannot be achieved by thinking through a conversational process (Osterwalder & Pigneur, 2010). Geterud & Tegern (2012) additionally state that assessing a business model concept through various tools is necessary before an investment decision to implement the model takes place.

Input: Two inputs into Step 14 exist: 1) The business model prototypes from Step 13 and 2) If a business model is discarded the user should return to Step 14 to choose a different business model prototype.

Actions: The tools that should be considered in Step 14 are listed and described below. The first six tools, some with certain alterations, are predominantly and sequentially from the third and fourth phase in Geterud and Tegern's (2012) framework while the seventh and eighth tool was designed by Osterwalder and Pigneur (2010). The first eight tools can be seen in Appendix V in Sections V.1 to V.8. Finally Step 14 possesses a ranking feature in which the business model prototypes are ranked from most to least promising based the user/parent company's judgement of the assessment information generated by Step 14.

1. **Storyline:** According to Osterwalder & Pigneur (2010), stories assist in effectively communicating an unfamiliar business model which leads to less resistance to accept it due to the business model being more tangible, clearer and engaging. The storyline tool in Section V.1 was generated by combining Geterud & Tegern's (2012) Tagline-Story components found within the left column of Figure V1, with Osterwalder and Pigneur's different storyline techniques found in the top row headings, resulting in a more comprehensive tool.

2. **Prototype Strategy Canvas:** This tool, seen in Section V.2, stems from Geterud and Tegern's (2012) 'Value Proposition Canvas' tool in their concept assessment phase. Their original tool was compared their new Value Proposition to their original old/current one. Since no old Value Proposition exists for the project team executing this framework, the original tool was altered to compare it to the Value Proposition Canvas generated in the Competitor's Analysis in Step 10. Therefore, a clear strategy canvas is generated which highlights how the new Value Proposition prototype compares to its competitor's performance and the customer importance. Geterud and Tegerns tool description, table and graph seen in Figures V2 and V3 was altered accordingly to accommodate this change.

3. **GAP Analysis:** The GAP analysis tool, seen in Figure V4, highlights the gaps that exist between the business model prototype and the perfect 'to-be' concept.

4. **Business Impact and Uncertainty:** This fourth tool, illustrated in Figure V5, considers the uncertainties and risks coupled to the business model prototype, specifically how difficult it is to replicate the business prototype and finally it considers the future state of the market, customers and Value Proposition. The original tool included a brief assessment of the business

model profitability, however an in-depth financial analysis is already performed by the Profit Formula and therefore the original profitability part was excluded.

5. **Positioning:** The Positioning tool, seen in Figure V6, highlights the two strongest elements of differentiation found within the Prototype Strategy Canvas when compared to other competitors. These two elements can serve as a competitive advantage in various areas, such as if they were to be highlighted in marketing strategies for example. Figure V6 was adjusted to be in line with the adjusted Prototype Strategy Canvas,

6. **Risk Assessment:** This risk assessment is more specific in that it concentrates on identifying the risks and their associated countermeasures for the customers, competitors and finally the company. The Risk Assessment tool can be seen Figure V7.

7. **SWOT Analysis:** This action consists of two SWOT analysis parts. The first part, designed by Berry (2016), assesses the business model prototype from an overall and general perspective in Section V.7.1. The second is a more in-depth SWOT analysis tool that Osterwalder and Pigneur (2010) designed in terms of their Business Model Canvas in Section V.7.2. The execution of an overall and more in-depth SWOT analysis combination results in decisions that should be made as well as generating innovation and renewal around the business model prototype (Osterwalder & Pigneur, 2010).

8. **Scenarios:** Scenarios are like prototyping and storylines. A scenario assessment tool renders a potentially abstract business model more tangible, forces out-of-the-box thinking, assesses how it would react in different situations and leads to a better understanding of the necessary changes that is required to be implemented (Osterwalder & Pigneur, 2010).

9. **Simulated Profit Formula:** This final tool in Step 14 references back to the simulated Microsoft Excel Profit Formula generated in Step 11.3. As mentioned, this simulation can be used to compare the business model prototypes to one another as well as compare them to competitor's financial information if available.

Output: A decision should be made whether the business model prototypes are feasible or not:

- Yes: A single business model prototype, deemed to be the most feasible and successful based on Step 14's assessment, is chosen. Therefore, a final business model exists for the chosen white space opportunity and it moves onto Step 15.

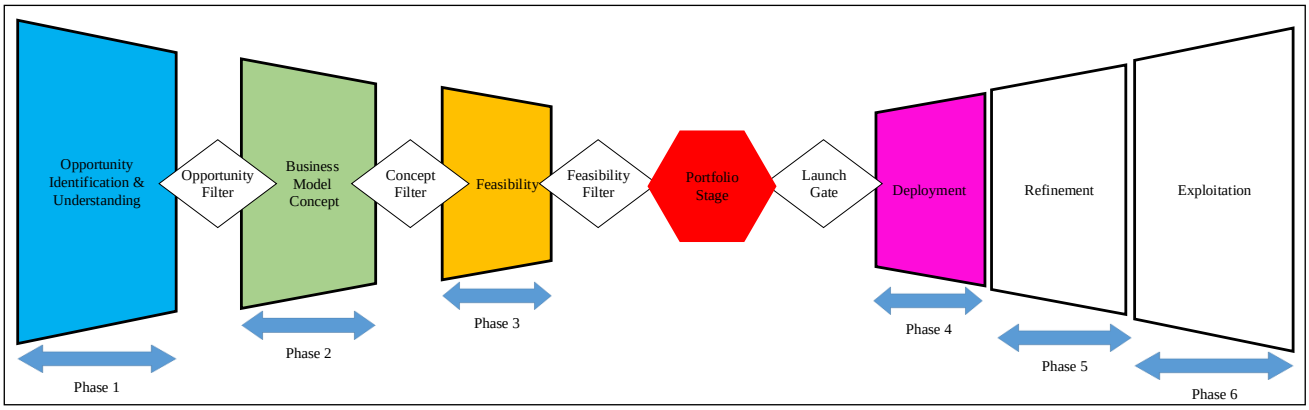
- No: The business model under evaluation is not deemed as feasible. Three possible decisions exist:

    - Adjust: The business model is kept and adjusted in Step 11 within Phase 2, in line with the information gained from Step 14.

    - Choose New Business Model: The business model is discarded, and the next best business model is chosen in Step 14.

    - Choose New White Space Opportunity: No business model prototypes are deemed as feasible and therefore a new white space opportunity is chosen in Step 7.

6.3.6 Portfolio Stage



The Portfolio Stage contains only a single action step, Step 15. The framework found within the Portfolio Stage can be seen in Figure 6.9.

Objective: To capture the final business model and decide whether it will be launched or stored further.

Motivation: Step 15 and its decision output represents the Portfolio Stage within the High-Level Phase Model. Du Preez & Louw (2008) state the Portfolio Stage entails the decision of when the chosen innovation solution is to be launched or stored further – in this case the innovation solution is the generated final business model.

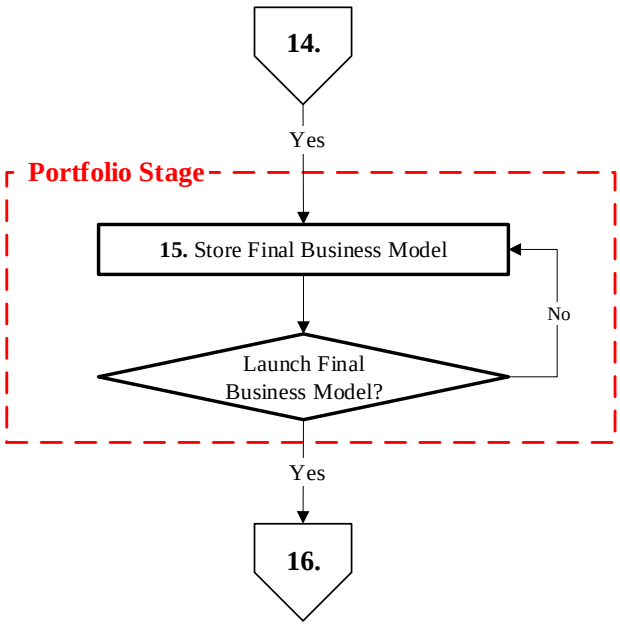


Figure 6.9: The framework situated within the Portfolio Stage.

Step 15 also serves a similar role as Step 13 in terms of making the final business model, where it is no longer labelled as a prototype, distinct and clear from the rest of the framework for reference and organisational purposes.

Input: The direct input into Step 15 consists of the final business model that was chosen which successfully passed the assessment in Step 14.

Actions: The final business model is stored and all the information obtained up to this point in the framework is considered to assist in the launch decision.

Output: A decision should be made to whether to launch the final business model or not:

- Yes: The firm's leadership decided that the time is right to implement the final business model. Therefore, it moves through the Launch Gate and is implemented in Phase 4.
- No: It was decided that the time is not right for the final business model to be deployed. Therefore, it stays within Step 15 until a *Yes* output is generated.

6.3.7 Phase 4: Deployment

According to Du Preez & Louw (2008), the deployment stage contains the detailed design and implementation steps. This section introduces and describes the steps of the framework found within Phase 4. The framework situated within Phase 4 can be seen in Figure 6.10 below.

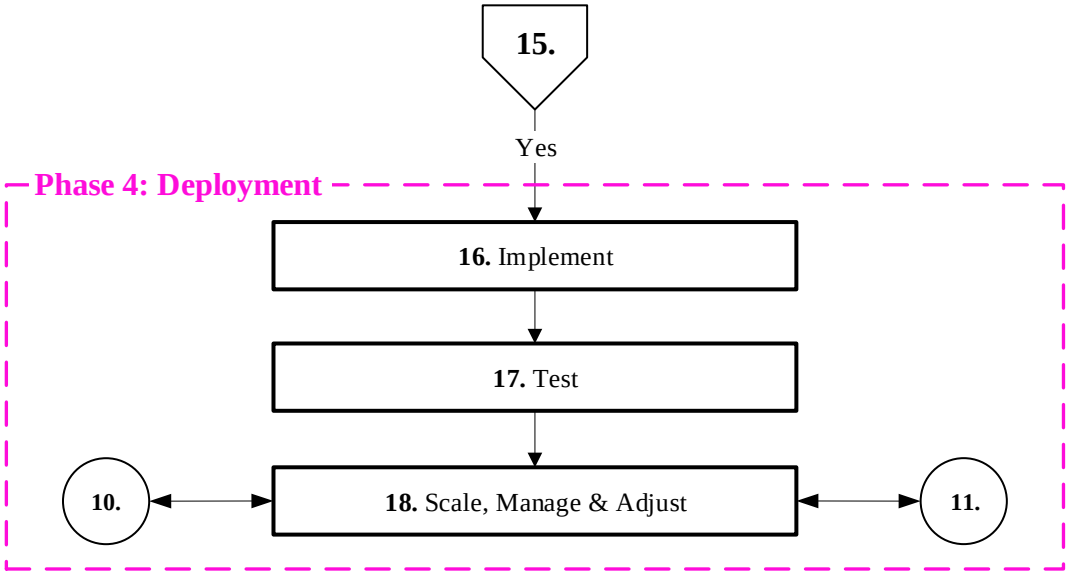


Figure 6.10: Proposed framework situated within Phase 4.

Phase 4 contains the necessary steps to implement, test and manage the final business model. It was stated in Chapter 1 that the steps that fall in and after implementation are outside the scope of this study. For this reason, the steps and considerations within Phase 4, 5 and 6 are only briefly described.

Step 16 to 18 in Figure 6.10 are described briefly in Section 6.3.7.1 to 6.3.7.3 respectively. Finally, the detailed design process is discussed in Section 6.3.7.4.

6.3.7.1 Step 16: Implement

Objective: To implement the final business model in the white space opportunity.

Input: Step 16 receives the final business model which was launched from Step 15.

Motivation: Implementation was a common step that occurred in the described BMI and innovation frameworks that were described in the literature review. The aim of Step 16 is to transform the final business model design from a theoretical concept to a physical support structure which will be ready for testing.

Actions: Implementation in this step involves the company preparing for and executing implementation within the white space opportunity to set the base for Step 17.

In terms of preparation, Osterwalder & Pigneur (2010) suggest that implementation should entail defining associated developments, stipulating milestones, assembling the required legal procedures and finally generating an in depth financial budget and project roadmap. These preparatory implementation suggestions are supported by the final tools found in Geterud & Tegern's (2012) framework, where they generate a business case involving complex financial calculations and an implementation plan in the form of a Gantt chart.

In terms of physical implementation, Frankenberger *et al.* (2013) suggest that investments should be made to get the physical structures in place so that the new business model can be operated and therefore tested. This idea is supported by Johnson (2010b) who states that, "To successfully incubate a new business you must identify a *foothold market*, a small geographic region or customer group that will serve as the low-cost laboratory". He goes on to stress very heavily that at this early stage the new business model must still be kept separate from the parent organisation to stop interference in the way it operates.

Output: Once the business model has been successfully implemented, it should then be tested in Step 17.

6.3.7.2 Step 17: Test

Objective: To physically test the final business model in the white space opportunity, from which information is gained and valuable lessons are learnt.

Input: Step 17 receives the implemented business model from Step 16.

Motivation: The final business model should be tested in the white space opportunity to gauge its success. Johnson (2010b) states that with testing, "The immediate goal here isn't necessarily business success; it is *new* learning. Testing that delivers clear answers should be encouraged, even if they come from failures". He goes on to suggest that during this early stage that managers should test early, inexpensively and frequently. Geissdoerfer *et al.* (2017) state that during this experimentation step, an analysis can be performed to learn lessons.

Actions: The final white space business model is operated and tested within the foothold market during which lessons are constantly learnt.

Output: The information obtained in the form of lessons learnt are passed onto Step 18.

6.3.7.3 Step 18: Scale, Manage and Adjust.

Objective: To increase in scale, manage and constantly adjust the final business model.

Motivation: The adjustment and management of innovative solutions was prominent in most BMI and innovation frameworks presented. Osterwalder & Pigneur's (2010) 'Manage' phase entailed the alteration and adaption of the business model in response to how the market reacted to it. They state that a constant evaluation of the business model and environmental understanding is needed for this to occur, which was supported by the other BMI and innovation frameworks. Additionally, the business model itself should be enlarged in scale and its markets broadened (Lindgardt & Reeves, 2011; Johnson, 2010b; Geissdoerfer *et al.*, 2017). Finally, a decision should be made, at some point in time, whether the new business model will be integrated or kept separate with or from the parent organisation (Lindgardt & Reeves, 2011; Johnson, 2010b; Osterwalder & Pigneur, 2010).

Initial Input: The initial input consists of the information obtained from executing Step 17.

Actions:

- The input information should be assessed after which appropriate adjustments are considered to make to Step 10 and 11.
- Considering whether the business model will be enlarged in scale.
- Consider the conditions for business model integration or separation, as listed in Table 2.6.

Final Input/Output: An exchange of input/output exists between Step 18, and Step 10 and Step 11:

- Input/output to/from Step 10: The output adjusts the understanding of the environment as the business model changes over time as well as ensuring a constant proactive evaluation of the environment. The input from Step 10 to 18 on the other hand ensures that the new information gained from Step 10 is considered within the operation, management and refinement of the business model.
- Input/output to/from Step 11: The output to Step 11 refines the business model design. The input from Step 11 to 18 ensures that the refinements made to the design are considered during the operation and management of the business model.

The various process flow loops within the white space BMI framework result in a constant improvement process.

6.3.7.4 Detailed Design

The concept of detailed design forms part of the Deployment Stage (Du Preez & Louw, 2008). The final business model concept is transformed from an initial concept filled with assumptions, to a detailed design through the process flow loops from Steps 10, 14 and 18. These steps are highlighted by the red arrows shown in a simplified framework diagram illustrated in Figure 6.11 below.

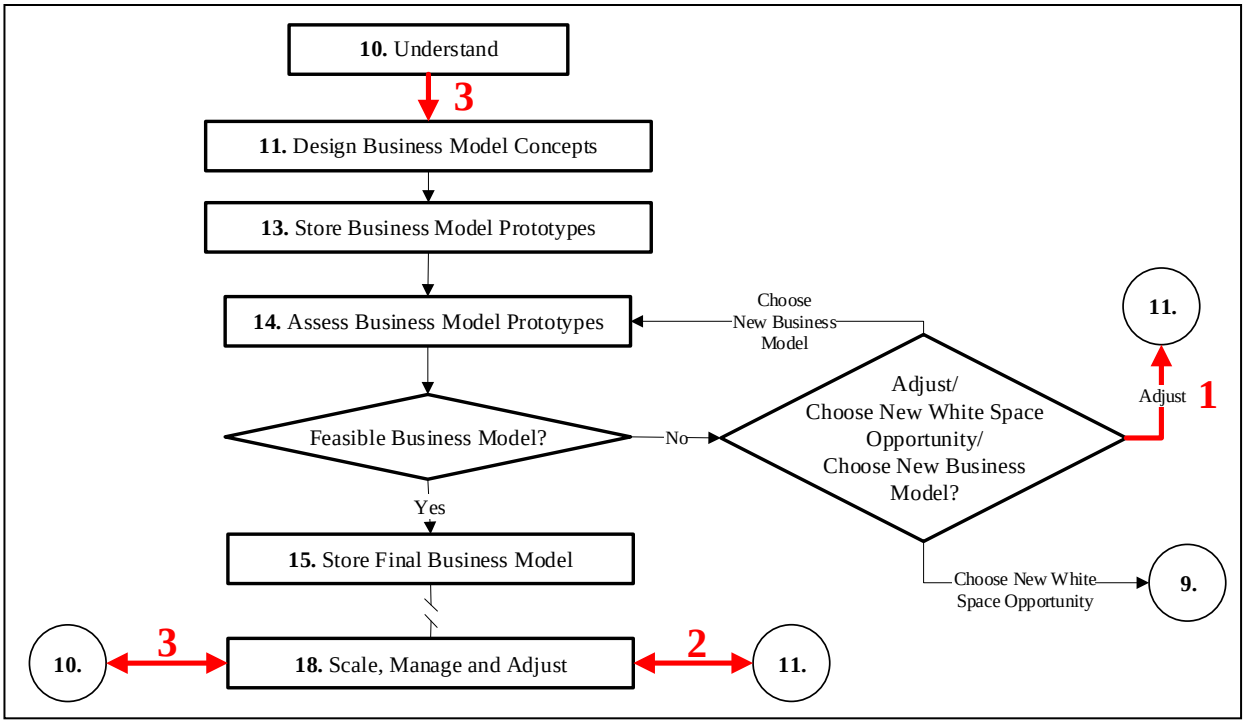


Figure 6.11: Three iterations that occur which lead to a detailed design.

Three loops, labelled one to three, are created in Figure 6.11 above, resulting in a continuous improvement process. Therefore, three different types of iterations exist which influence the design process. The first iteration occurs until Step 14 deems the business model as being feasible. The second iteration adjusts the design process in line with the lessons learnt from Step 17 (Test). The third iteration occurs to continuously refine the understanding of the business model environment, which adjusts the business model design in line with these refinements.

Therefore, the initial and final business model becomes more detailed over time after each set of iterations. The numbering in the loops do not however convey the order of how the iterations must occur within the framework, since the framework contains a flexible process.

6.3.8 Phase 5: Refinement

Refinement of the business model is achieved over time after the detailed design has been finalised. This concept is illustrated in Figure 6.12 below.

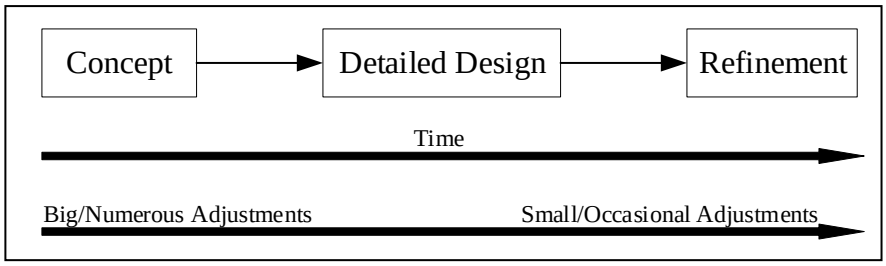


Figure 6.12: The transformation from a concept business model to a refined

The business model concept undergoes major or numerous adjustments during the initial learning phase, from the concept design to the detailed design. Assuming no major industry or market changes, small or occasional constant adjustments will be required to refine the business model after the detailed business model is settled and operating. The refinement results in a more optimally functioning business model.

6.3.9 Phase 6: Exploitation

Phase 6 involves expanding the business model to new markets or creating new business models to generate an increase of value (Du Preez & Louw, 2008). Even though this phase was outside the scope of this study, extra work was done to create a new exploitation concept, in the form of an additional framework, which is in line with the proposed solution of the research study. This concept is illustrated in Figure 6.13 at the top of the following page.

The Exploitation Framework utilises the proposed framework in Figure 6.3 for value generation purposes by integrating newly generated business models back into one another. It was generated and developed by combining the definition of the High-Level Phase Model's Exploitation Phase with that of the proposed framework.

Since this Exploitation Framework is of a theoretical conceptual nature and not part of the research study's scope, it was not validated. It can however lead to potential further research opportunities.

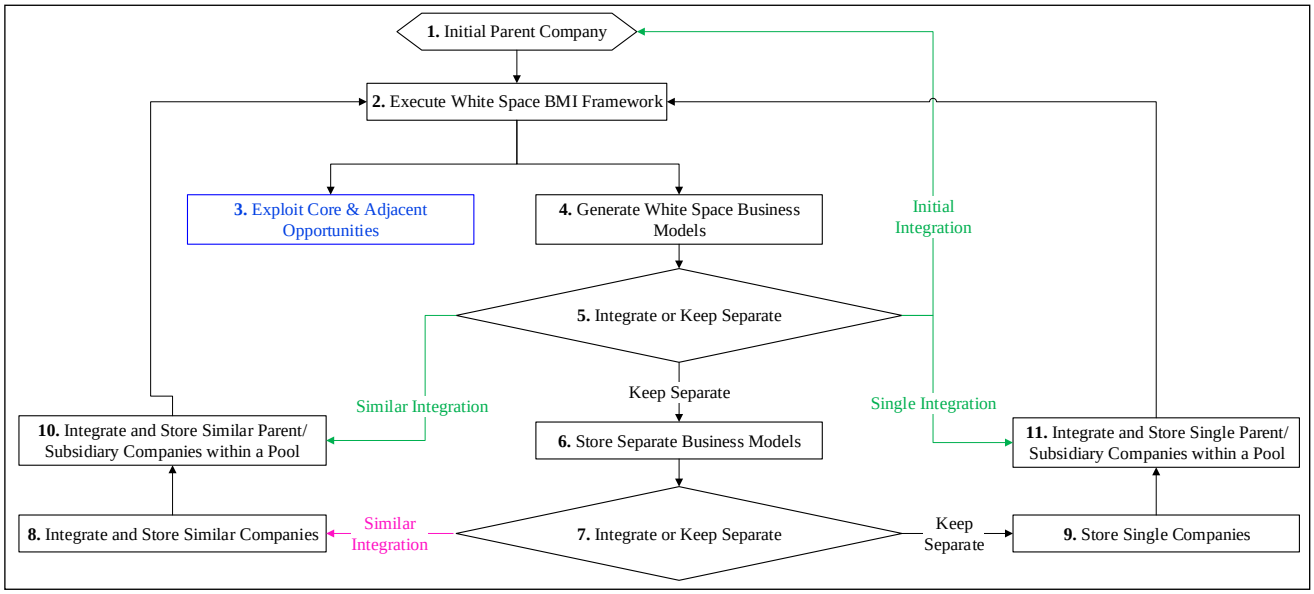


Figure 6.13: Exploitation Framework

The numbered list below sequentially explains the numbered exploitation framework steps in Figure 6.13. The framework steps referred to in this section relates to the steps in the Exploitation Framework only.

1. Initial Parent Company: This is the first and initial company that utilises the white space BMI framework in Figure 6.3, and serves as the main parent company under which all other subsidiary companies will fall under.

2. Execute White Space BMI Framework: The initial parent company starts the framework by identifying and classifying market opportunities as core, adjacent or white space opportunities.

3. Exploit Core and Adjacent Opportunities: The parent company exploits the core and adjacent opportunities resulting in an increase in value for that parent company.

4. Generate White Space Business Models: The parent company executes the rest of the white space BMI framework for all identified white space opportunities resulting in a new business model for each individual white space opportunity.

5. Integrate or Keep Separate: Table 2.6 provided conditions for when a business should be kept separate or be integrated back into the parent company. If the conditions allow for integration, the newly generated business models are integrated back into the parent company currently using the Exploitation Framework by following Step 5's *initial integration* output. If the newly generated business model must be kept separate, it moves on to Step 6, resulting in a separate subsidiary company which is generated underneath the parent company.

6. Store Separate Business Models: This pool contains all the newly generated business models, from each respective identified white space opportunity, that had to be kept separate from the parent company.

7. Integrate or Keep Separate: The integration/separation conditions are used once again for the entire pool of business models in Step 6, to decide which separate business models are similar enough to one another for them to be integrated into one another. Those business

model that are similar enough are integrated into one another and follow the pink similar integration output to Step 8. Those business models that must still be kept separate, and are therefore singular in nature, go to Step 9.

8. Integrate and Store Similar Companies: This step stores, within a pool, and integrates all the separate business models into one another resulting in *Similar Companies*. Each of these similar models contain at least one integration.

9. Store Single Companies: Step 9 contains all the business models that could not be integrated into any other business model and can therefore be considered as an absolute *single* business model with zero integrations at this point in the exploitation framework.

10. Integrate and Store Parent/Subsidiary Companies within a pool: The integrated business models from Step 8 each form their own parent company since they have the potential to also have subsidiary companies beneath them, but at the same time these similar parent companies are also subsidiary companies since they fall under the initial parent company's blanket. Therefore, the integrated companies within this pool are simultaneously classified as: *Similar Parent/Subsidiary Companies*.

    These similar parent/subsidiary companies then each repeat Step 2 to Step 7 in the exploitation framework. The new business models that these similar parent/subsidiary companies then generate can then also be integrated back into themselves or possibly any other company in Step 10 if the integration conditions allow it through the green *similar integration* output from Step 5. Similarly, these newly generated business models could also be integrated into the companies situated within Step 11 through the green *single integration* output from step 5.

11. Integrate and Store Single Parent/Subsidiary Companies within a pool: The dynamics surrounding Step 11 is the same as step 10, except it accounts for the single business models from step 9. These singular business models are also classified as parent/subsidiary companies which can contain either zero or more integrations.

The exploitation framework results in a repeatable process, which has the capability to generate large amounts of value in one of three ways listed below:

1. Exploiting each parent company's core and adjacent opportunities.

2. Creating new similar and/or single parent/subsidiary business models that fall under the blanket of the parent companies.

3. Growing all parent companies through business model integration.

The above value generation list can be illustrated in Figure 6.14 at the top of the following page. The value of the initial parent company before utilising the Exploitation Framework is represented by the inner light blue circle in Figure 6.14. As this company utilises the framework, it can increase its value in one of the three ways mentioned above.

The dark blue circle, in Figure 6.14, surrounding initial light blue circle represents an increase in the initial parent company value, due to the exploitation of the core and adjacent opportunities. The green outer circle represents the value added due to initial integrations of business models back into the initial parent company. Once the separation output in Step 5 is triggered for the first time, a blanket is created in order the cover all the parent/subsidiary companies that fall underneath and form part of the initial parent company.

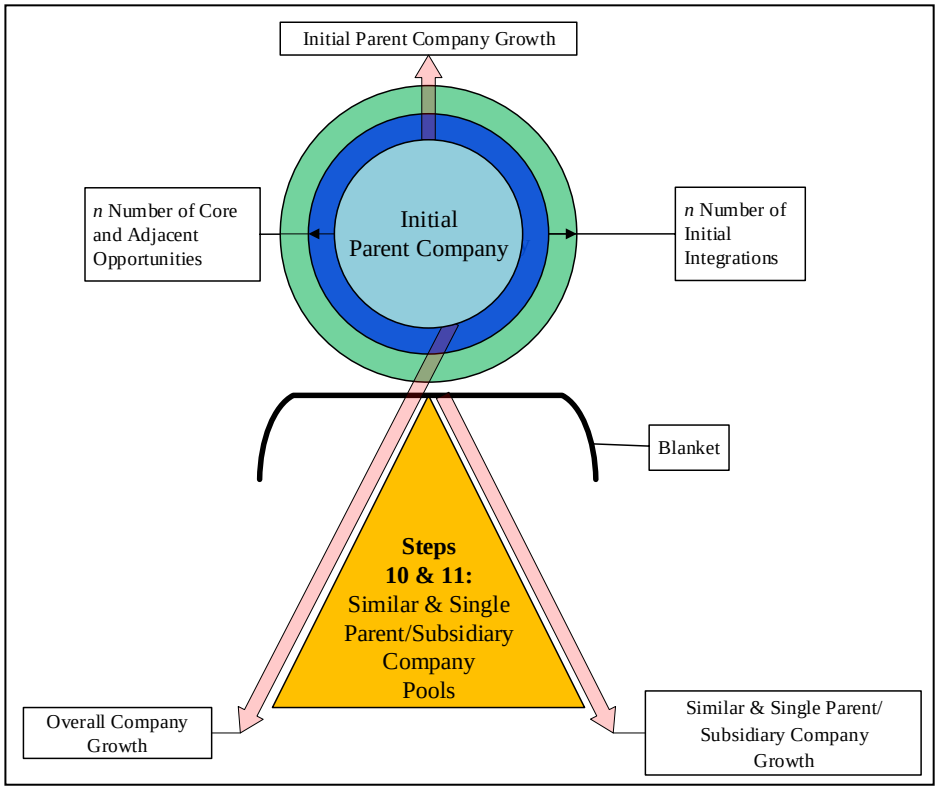


Figure 6.14: Illustration of how an initial parent company can create vast amounts of value by using the exploitation framework

The parent/subsidiary companies can also use the exploitation framework and can therefore also increase their value in the same way as the initial parent company, through the three value generation conditions. These are collectively represented by the expanding orange triangle and bottom right red arrow. As the exploitation framework is constantly being used by all the different parent/subsidiary companies, the overall company structure grows in value as represented by the bottom left red arrow. Figure 6.14 can be alternatively shown in Figure 6.15 below to better clarify the Exploitation Framework concept as well as illustrate the possible output results that could be generated.

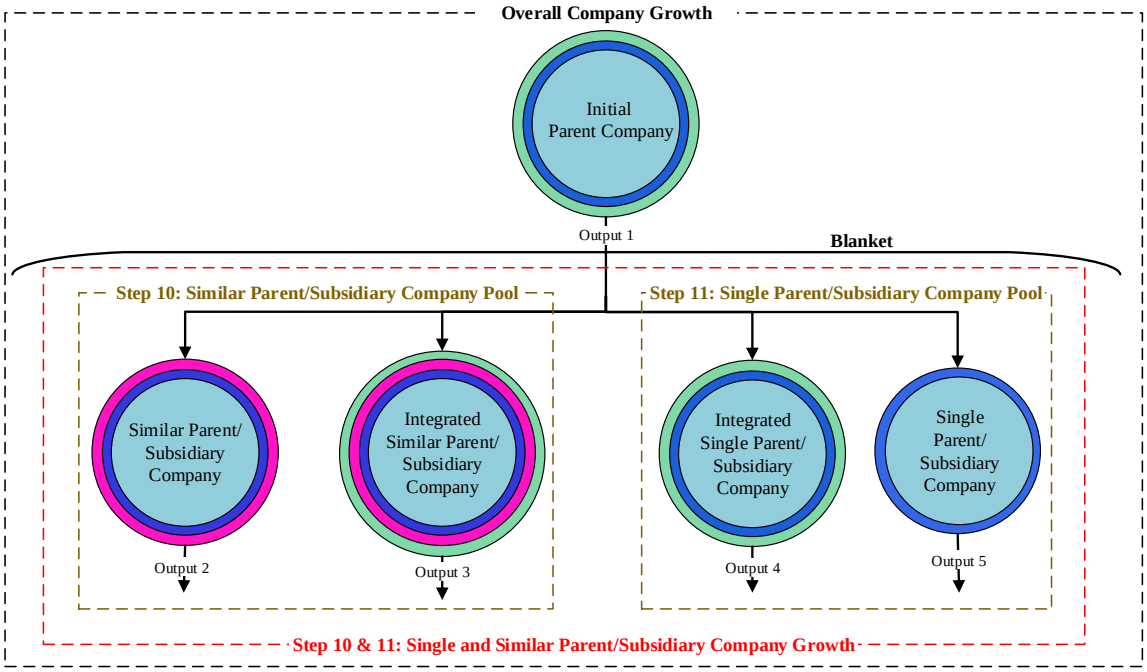


Figure 6.15: Illustration of all the possible value growth results that the exploitation framework can generate

Figure 6.15 assumes all possible results, in terms of the three value generation conditions, are achieved by the initial parent company and its parent/subsidiary companies. All the companies in Figure 6.15 illustrate the value through exploiting their core and adjacent opportunities through their external dark blue circle.

The initial parent company can be seen at the top of Figure 6.15, in its integrated state which is represented by the outermost green circle. Once the separation output in Step 5, which is equal to Output 1, 2, 3, 4 and 5, is triggered the blanket is created and the potential for parent/subsidiary company creation exists.

Two different companies can result from the 'Similar Parent/Subsidiary Company Pool' illustrated in Figure 6.15 and situated within Step 10. A 'Similar Parent/Subsidiary Company' can result that do not receive any integrations from Step 5's *Similar Integration* output. Therefore, these companies remain in their initial integrated state, which is shown by the external pink circle. These companies contain a minimum of one integration.

The second type of company that can result from Step 10 is an 'Integrated Similar Parent/Subsidiary Company'. As the first two words of the name indicate, these companies contain at least two integrations - the 'similar parent company' from Step 10 becomes integrated by step five's green *Similar Integration* output, resulting in its outermost green circle.

Similarly, within the 'Single Parent/Subsidiary Company Pool' in Step 11, an 'Integrated Single Parent/Subsidiary Company' can result from being integrated by Step 5's green *Single Integration* output, or a 'Single Parent/Subsidiary Company' results, which was not able to be integrated with any companies.

6.3.10 Change Management

The final component of the proposed framework is the change management block which runs in parallel with the entire High-Level Phase Model as was illustrated in Figure 6.3.

Objective: To oversee and manage the BMI change, resistance, barriers and enablers that is accompanied by the proposed framework.

Motivation: Change management was discussed in Section 3.1.4, where it was mentioned how a firm's performance can be influenced when it moves away from its natural environment. More specifically, it was described that if the BMI process consists of systematic changes, as is the case with the proposed framework, certain barriers will be encountered. Therefore, change management is important for successful BMI to take place.

BMI enablers and barriers, as described in Sections 2.3.4 and 2.3.5 respectively, are also to be considered within the change management process. The BMI process should be more effective by highlighting and managing these enablers and barriers.

Since the entire framework is a BMI process, the Change Management block was put in parallel with the entire High-Level Phase Model, so that a constant interaction can occur between the two and where change can be managed from the beginning to the end.

Actions:

- Initiation resistances: The framework user should manage the following resistances that are initially generated when change occurs: Social, cultural, physiological, political, fixed processes, structures and stakeholder agreements.

- Planning, implementation and coagulation: The following three phases create an accepting environment within an organisation: 1) Management of perception and beliefs, 2) Power and politics management and 3) Issue management. They should be planned, implemented and coagulated.
- Change factors: The following change factors should be considered to make to the organisational system: speed, scope, pace, timing and magnitude.
- BMI Enablers: BMI enablers include organisational culture, management involvement and support. These enablers should be taken into consideration and implemented.
- BMI Barriers: Organisational structure, organisational culture, financial metrics and incentives comprise of the main barrier themes. These barrier themes should be made aware to the firm executing the framework and appropriately managed.

The following section summarises Chapter 6.

6.4 Chapter summary

This chapter proposed an initial white space BMI framework, which aims to identify a white space opportunity and develop and innovative business model. First, an overview was presented followed by a description of how the framework was developed in terms of its high-level phases, critical BMI stages, design guidelines, critical activities and tools. This was followed by a detailed step-by-step description of the framework in terms of each step's objectives, motivations, inputs, actions and outputs. An additional concept was presented and described in this chapter in the form of an Exploitation Framework.

The proposed white space BMI framework, which was developed from a comprehensive literature review and final set of design guidelines, aims to provide settled companies with a generic support framework which is structured and flexible in nature. The proposed framework is unique in that it is an illustrative support framework in the form of a comprehensive systematic BMI decision-making process, containing appropriate tools and business model building-block design guidelines, which aims to identify a white space opportunity and develop and innovative business model.

The seventh objective, as stated in Section 1.3, is fully achieved in Chapter 7:

7. Identify the relevant methods and tools necessary to assist the business model development process.

Alternatively, Chapter 7 assisted in partially achieving the eighth objective:

8. Develop a framework capable of systematically identifying a white space opportunity and developing an innovative business model.

The following chapter validates the proposed conceptual framework.

CHAPTER 7
FRAMEWORK VALIDATION

Chapter 7 aims to validate the proposed solution of the research study. To be consistent, the same validation process was used as in Chapter 5. However, this chapter's validation process consisted of only one round and 18 experts. For this reason, the validation theory, method and approach to data collection, as well as the survey design descriptions are only briefly addressed in Sections 7.2, 7.3 and 7.4 respectively. Section 7.5 presents, analyses and describes the quantitative and qualitative results of the validation process and the adjustments made followed by Section 7.6, where the final proposed solution of the research study is presented and described. Finally, Section 7.7 briefly summarises Chapter 7. Figure 7.1 below illustrates the position of this chapter in relation to the study.

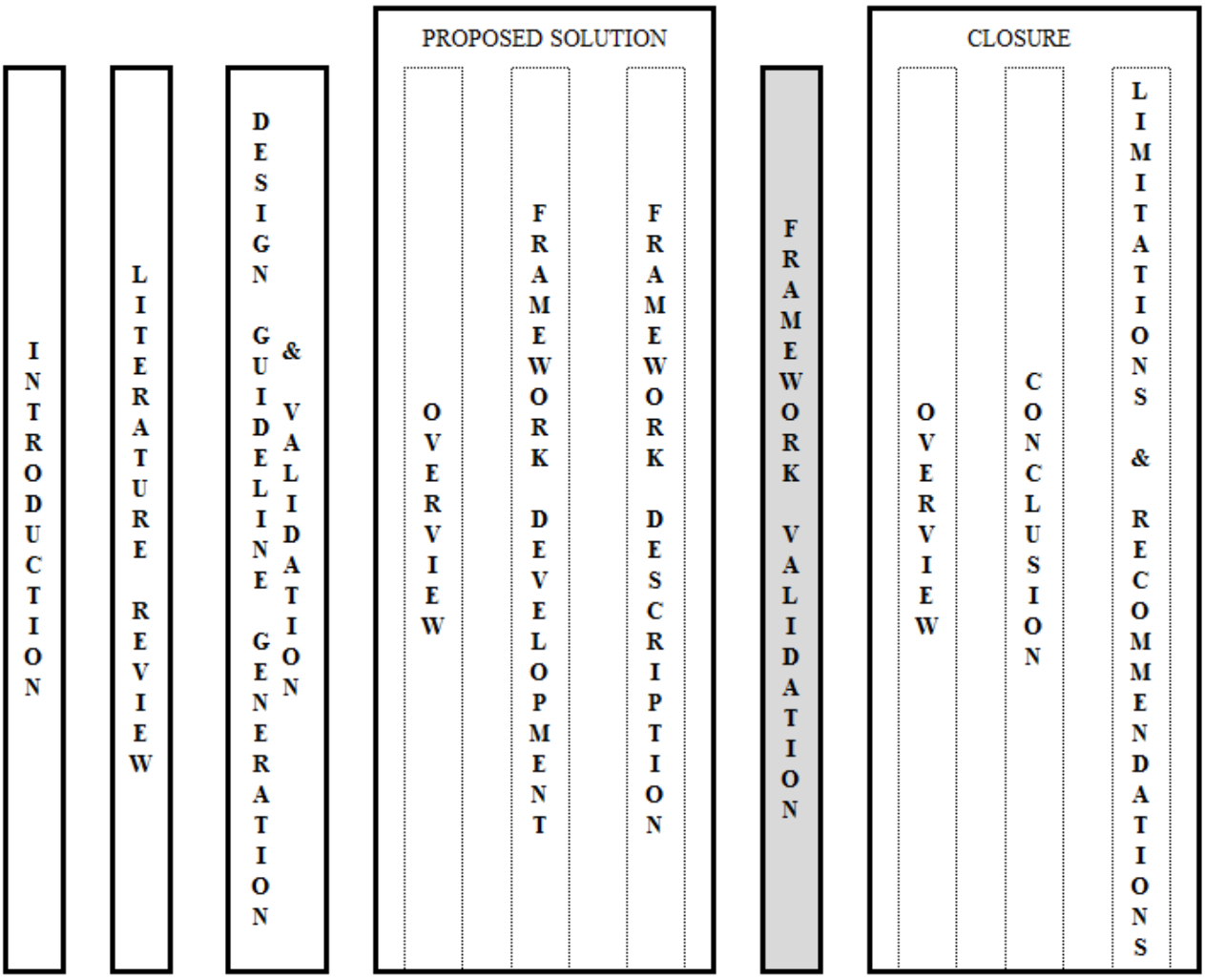


Figure 7.1: The position of chapter 7 relative to the research study

7.1 Initial validation

The framework in Chapter 6 was generated from a comprehensive literature review. An article with the title of 'Business Model Innovation for Seizing for White Space Opportunities: A Design Framework' was submitted to the 28th annual conference of the South African Institute of Industrial Engineering (SAIIE) (Kuhn & Louw, 2017). The article was examined through a two round process with two expert reviewers, after which it was accepted and presented at the SAIIE conference. No changes were requested by the reviewers. This completed the initial validation of the white space BMI framework.

7.2 Validation theory

Ostelo & de Vet (2005) state that three types of validity exist: construct, criteria and content-validity. Particular attention was given to the survey structure, survey sequence and question content and phrasing to ensure construct validity. Criteria validity was ensured by using the Delphi consensus criteria from Chapter 5 and by using suitable experts as survey participants. Content validity was executed through the literature review, theoretical definitions and synthesis.

7.3 Method and approach to data collection

The approach used to collect the data for the framework validation was through a one-round questionnaire that was mailed online to participants. The online survey utilised a mixed method research technique wherein quantitative and qualitative aspects were employed through a Likert scale and open-ended questions respectively. The same questioning and expertise criteria was followed as in Chapter 5.

7.4 Survey design

Following on from Chapter 5, the survey design stages are illustrated below in Figure 7.2.

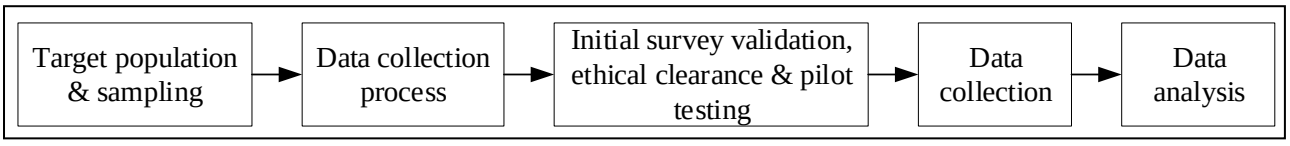


Figure 7.2: Survey Design Stages.

Sections 7.4.1 to 7.4.5 follow the process of Figure 7.2 above, after which the survey questions are described in Section 7.4.6.

7.4.1 Target population and sampling

This section briefly explains the how target population and sample were determined.

7.4.1.1 Target population

The target population for the framework validation was mainly focused at industry and academic experts that specialise in the BMI research domain, with an additional focus on the Innovation and

Innovation management research domain, since the proposed framework was mainly synthesised from BMI and Innovation frameworks. Other related fields of study were also considered as motivated in the list below:

- Business Models: A core understanding of what constitutes a business model is important to be able to execute the framework.
- Business Strategy: As explained in Section 3.2, Strategy and BMI have a multifaceted association. Strategy is required for competitive evaluations, growth, systematic refinements and sustainability, all of which play an important role in the framework.
- White Spaces: The research study specialises in white space opportunities.

7.4.1.2 Sampling

As previously mentioned, Thietart *et al.* (2001) require the following the following six components to be considered within a target population: 1) Population definition, 2) Select a sampling method, 3) Establish sample size, 4) Determine sampling frame, 5) Choose sample elements and 6) Data collection. The first five components are explained in the list below, while data collection is described in Section 7.4.2.

1. As explained in Section 7.4.1.1, the framework encompasses various research domains and therefore experts were chosen with backgrounds in the following fields: BMI, innovation and innovation management, business models, business strategy and white spaces.
2. Judgement sampling was used by the author to select and contact the most experienced and suitable experts within the target population.
3. In Chapter 5, the Delphi method required between 10 to 15 participants. Since this validation process was only one round, there was not a limit on the total number of participants. From a total of 34 participants that agreed to participate, 18 participants completed the online survey successfully.
4. The validation concentrated on individuals with expertise in BMI, innovation and innovation management, business models, business strategy and white spaces.
5. All sample elements were wide-ranging and was applied to all sample participants.

7.4.2 Data collection process

Data was collected through a single online mixed-method survey. A survey was chosen for this validation process due to time and cost implications, as well as the validation being of a theoretical and not an experimental nature. The survey was executed through Google Forms, which allows many questions and participants, as well as the download of a Microsoft Excel document which contains the data.

The survey had to be constructed in an organised and logical manner with an appropriate length so that the reliability and accuracy of the survey could be balanced with keeping the attention of the participants. The initial survey was too compact and short, after which it was altered to consist of a total of 55 questions. In the altered survey, all the open-ended questions were either voluntary or compulsory, depending on the answer given to the Likert scale question.

7.4.3 Initial survey validation, ethical clearance and pilot testing

The survey was initially validated through supervisor Dr Louw, from whom the following issues arose: 1) The survey length was too short and not detailed enough, 2) Incorrect wording choice and sentence structure in several questions and 3) The addition to validate the framework features. Corrections were made in accordance with the suggestions from which the second framework survey draft originated.

The second draft was submitted to and accepted by the REC for ethical clearance. The FESC deemed the survey to be low risk, which meant that data collection could begin with immediate effect. Additionally, no changes to the survey were requested by the REC. Institutional permission was received from every participant through a written consent form.

In accordance with Litwin's (1995) suggestions, the second framework draft survey was pilot tested through one Stellenbosch business strategy lecturer, one industrial engineering master's student and two undergraduate students to detect any final mistakes, as well as record the completion time. The average time for completion was 30 minutes and one spelling and one numbering mistake was found. Appropriate corrections were made, which meant that the final survey was ready to be sent out to the suitable participants.

7.4.4 Data collection

Numerous organisations and individuals that specialise within the research domains mentioned in the target population, and who were identified through the Google search engine, were contacted through email or telephonically. They were requested to participate in the framework validation survey, along with a written consent form. The entities that agreed and which sent back the written consent form were recorded and sent an explanatory email containing a summary document and a link to the online framework survey. The invitation email, written consent form, explanatory email and summary document, as seen by the participants, can be seen in Appendix W in Sections W.1, W.2, W.3 and W.4 respectively.

A total of 76 emails were sent out from which 34 individuals agreed to participate. In total, 18 participants eventually managed to complete the survey even though some participants went over the deadline. Therefore, the first round's acceptance response rate was 45% and the completion rate from those which accepted was 53%. The framework survey was open for completion for three weeks: from the 31st of July 2017 to the 21st of August 2017.

Quantitative data was collected in the form a closed-ended five point Likert scale question containing the following scale: 1 = Strongly Disagree; 2 = Disagree; 3 = Undecided; 4 = Agree; 5 = Strongly Agree. Qualitative data were collected by one open-ended question, which followed each Likert scale question in which participants could state and describe their disagreements and suggested improvements. Data was collected by downloading a Microsoft Excel document that Google Forms automatically generated. The data was then assembled into a neater and more organised format after which it was analysed.

7.4.5 Data Analysis

The data analysis executed for Chapter 7 is identical to that of Chapter 5. Qualitative data were assessed through a basic thematic analysis, which was interpretive and subjective in nature while the quantitative data was analysed using descriptive statistics. The descriptive statistic's criteria from

Chapter 5 are illustrated again in Table 7.1 below. To be thorough, all the consensus criteria will be analysed, although the median and IQR are the prominent statistical measures as explained in Chapter 5.

Table 7.1: Descriptive statistics consensus criteria for quantitative data

Statistical measure	**Description**	**Consensus Criteria**
Certain level of agreement	Percentage of agreement by participants	80% or more total agreement between the top 2 Likert scale measures: 4. Agree and 5. Strongly Agree.
Mean	Also known as the average, it is calculated by dividing the sum of all data points by the number of data points.	$\bar{x} \geq 4$
Median	The value that falls in the middle of a data set with 50% of the data points above and below it.	Median ≥ 4
Mode	The most frequently recurring value in a data set.	Mode must either be: 4. Agree or 5. Strongly Agree.
Standard Deviation	The measure of dispersion around the mean.	80% of answers must fall within: $\bar{x} \pm (1.645 \times s)$
Coefficient of Variation (CV)	The ratio of standard deviation to the mean.	$0 < CV \leq 50$ - Consensus has been reached.
		$50 < CV \leq 80$ - Below average of agreement. Consider an additional round.
		$CV > 80$ - Unsatisfactorily degree of consensus. Compulsory to perform an additional round.
Interquartile Range (IQR)	Measure of statistical dispersion which contains the middle 50% of values in a data set.	IQR ≤ 1

7.4.6 Survey Questions

The survey consisted of a total of 55 questions and eleven sections. Table 7.2 below lists the eleven sections and their purpose.

Table 7.2: Online framework survey section explanation

Section	**Purpose**
1	Introduces the survey and asks for the participant's email address.
2	Obtains personal demographic and background information of the participant.
3	Validates the generated BMI definition as well as Johnson's white space definition.
4	Validates the generated business model component design table.
5; 6; 7; 8; 9; 10.	Validates the High-Level Phase Model, Phase 1, Phase 2, Phase 3, Portfolio Stage and Phase 4.
11	Authenticates the usability of the framework by validating its features, main objective and contribution to research.

Appendix X contains the questions within the survey, along with their explanation and purpose within Table X1. It was compulsory for participants to answer the open-ended questions where no agreement

was indicated in the closed-ended Likert scale questions. Section 2 in the survey follows the same format as the first Delphi round survey in Chapter 5, thus the question explanations are not repeated. The final Google Forms survey, as was seen by the participants, can be seen in Appendix Y.

7.5 Results

The generated quantitative and qualitative data were analysed using descriptive statistics and a basic thematic analysis respectively. Section 7.5 presents, explains and analyses the results of each question within the survey after which the framework is appropriately refined.

7.5.1 Demographic and background information

The second section of the survey aimed to collect all the necessary demographic and background information of the participants through questions two to nine. The information obtained in these questions from the participants can be seen in Appendix Z. Table 7.3 below briefly analyses this information.

Table 7.3: Participant demographic and background analysis

Question Number	Analyses
2	Participant names were blacked out in Table Z1 to keep their anonymity. Each participant was allocated a number for tracking and reference purposes.
3	Nine participants indicated industry job descriptions or titles. Three participants indicated holding industry and high academic qualifications simultaneously while six participants purely held academic positions. Therefore, the group of participants were slightly more industry than academically orientated as illustrated in Figure Z1.
4	All participants held strong job positions: eight participants indicated holding an Owner/Executive/C-Level job position, six participants held a Senior Management position, while four participants held a Middle Management position, as illustrated on Figure Z2.
5	Various different industries were chosen in Table Z2.
6	All participants that chose “Other” indicated that they were in the consultancy industry in Table Z3.
7	All 18 participants indicated that they have been involved in a business model design or reconfiguration process of some sort in Figure Z3.
8	Each participant explained their answer to question seven in more detail in Table Z4, except for Participant 2 who did not comment.
9	As seen in Table Z5 and Figure Z4, sufficient experience was indicated in all fields of study, however the concept White Spaces had the lowest total experience with 3 participants indicating “No Experience”.

The information gained from the demographic and background analysis shows that all 18 participants were suitable experts to validate the proposed solution.

7.5.2 Closed-ended Likert scale question

The Likert scale questions obtained the degree of the participants’ agreement or disagreement. With regards to the quantitative data tables, the same colour-coding scheme was used as in Chapter 5. In terms of the descriptive statistics, the light blue indicates that consensus was reached while the purple indicates that consensus was not reached.

Table 7.7 and 7.8 on the following two pages illustrates all 18 participants' answers, as well as the calculated statistical measures for each Likert scale question. The following three abbreviations within the tables were used to save space: 1) HLP: High-Level Phase, 2) A&S: Approach and Steps and 3) LS: Logical Sequence.

In terms of the Level of Agreement measure, six of the 23 question columns passed the consensus criteria, namely questions 14, 20, 38, 40, 42 and 50. Questions 12, 16, 24, 32, 44 and 48 were on the borderline of passing the 80% requirement with 77.78%. Questions 10, 22, 30 and 46 performed the poorest with a Level of Agreement percentage of 61.11%. Recall that the strictest the Level of Agreement measure was chosen for this study, where other studies such the one performed by Loughlin & Moore (1979) used a Level of Agreement of 51%.

Eleven of the 23 question columns passed the consensus criteria for the mean. Questions 48 and 54 just missed the mean consensus requirement with a score of 3.89, both of which was influenced by *Disagree* outlier answer choices. A mean is influenced strongly by outliers within a small set of data and is therefore often not the definitive statistical measure of choice. Question 10 however contained the lowest mean value of 3.44. With regards to the median, one of the main statistical measures, all 23 Likert scale questions passed its consensus criteria successfully with a score of 4.00. Similarly, all 23 question columns passed the mode's consensus criteria with questions 16, 20, 36 and 38 scoring the highest mode value of 5.00. Table 7.4 and 7.5 below show how all 23 Likert scale questions passed the standard deviations interval consensus criteria. Additionally, all Likert scale questions passed the CV consensus criteria.

Table 7.4: Part 1 of the Likert scale questions passing the standard deviations interval consensus criteria

Q #	10	12	14	16	18	20	22	24	26	28	30
UL	5.16	5.60	5.31	5.59	5.73	5.88	5.22	5.24	5.35	5.43	5.62
LL	1.73	2.40	3.36	2.63	1.94	2.45	2.00	2.42	2.31	2.13	1.71
%	100.0	88.89	94.44	100.0	100.0	94.44	83.33	88.89	88.89	83.33	94.44

Table 7.5: Part 2 of the Likert scale questions passing the standard deviations interval consensus criteria

Q #	32	34	36	38	40	42	44	46	48	50	52	54
UL	5.49	5.73	5.69	5.79	5.49	5.39	5.49	5.08	5.37	5.13	4.68	5.26
LL	2.62	1.94	2.31	2.55	2.51	3.39	2.62	2.36	2.41	2.87	2.88	2.52
%	94.44	100.0	88.89	88.89	88.89	94.44	94.44	94.44	88.89	94.44	94.44	94.44

With regards to the IQR, the second core descriptive measure, eleven of the 23 questions had a consensus value of below or equal to 1.00. The twelve Likert scale questions, which did not pass the consensus criteria, can be investigated further by looking at the first and third quartiles, illustrated below in Table 7.6.

Table 7.6: Likert scale questions which failed the IQR consensus criteria

Q #	10	12	16	18	26	28	30	32	34	36	44	54
Q1	2.00	3.75	3.75	2.75	3.00	3.00	3.00	3.75	2.75	3.00	3.75	3.00
Q3	4.00	5.00	5.00	5.00	4.25	4.25	5.00	5.00	5.00	5.00	5.00	4.25
IQR	2.00	1.25	1.25	2.25	1.25	1.25	2.00	1.25	2.25	2.00	1.25	1.25

Table 7.7: Framework Likert scale analysis part 1

Question Description	BMI Definition	White Space Definition	Design Table Division	Design Table Comprehensiveness	HLP Model A&S	LS of the HLP Model	Phase 1 A&S	LS of Phase 1	Phase 2 A&S	LS of Phase 2	Phase 3 A&S
Question #	**10**	**12**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**
Participant 1	4	5	5	5	5	4	4	4	4	2	5
Participant 2	4	5	4	5	4	5	3	3	4	4	5
Participant 3	4	4	4	3	2	4	4	4	2	4	4
Participant 4	2	2	4	3	4	3	2	2	4	2	4
Participant 5	5	5	5	5	5	5	5	5	5	5	5
Participant 6	4	4	5	3	4	5	5	5	5	5	3
Participant 7	4	4	4	4	3	3	4	2	5	3	3
Participant 8	4	4	4	4	4	4	3	4	3	4	3
Participant 9	2	5	4	4	2	5	4	4	4	5	5
Participant 10	3	3	4	2	4	4	4	4	4	4	4
Participant 11	5	3	5	5	5	5	5	5	5	5	5
Participant 12	2	5	5	5	5	5	2	4	4	4	2
Participant 13	2	4	4	4	2	5	2	3	2	2	1
Participant 14	2	2	4	4	4	4	3	4	3	3	2
Participant 15	3	5	5	5	2	1	4	4	4	4	3
Participant 16	4	4	4	4	4	4	3	4	3	4	4
Participant 17	4	4	3	4	5	5	4	4	4	4	4
Participant 18	4	4	5	5	5	4	4	4	4	4	4
Level of Agreement	61.11	77.78	94.44	77.78	72.22	83.33	61.11	77.78	72.22	72.22	61.11
Mean	3.44	4.00	4.33	4.11	3.83	4.17	3.61	3.83	3.83	3.78	3.67
Median	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Mode	4.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	4.00	4.00	4.00
Std. Dev.	1.04	0.97	0.59	0.90	1.15	1.04	0.98	0.86	0.92	1.00	1.19
CV	30.24	24.25	13.71	21.90	30.01	25.04	27.10	22.37	24.09	26.56	32.40
IQR	2.00	1.25	1.00	1.25	2.25	1.00	1.00	0.25	1.25	1.25	2.00

Table 7.8: Framework Likert scale analysis part 2

Question Description	LS of Phase 3	Portfolio Stage A&S	Phase 4 A&S	LS of Phase 4	Critical BMI Stages	Key Feature 1	Key Feature 2	Key Feature 3	Key Feature 4	Key Feature 5	Main Objective	Contribution to literature
Question #	**32**	**34**	**36**	**38**	**40**	**42**	**44**	**46**	**48**	**50**	**52**	**54**
Participant 1	5	5	5	5	5	5	4	3	2	4	4	2
Participant 2	5	5	2	2	4	4	4	3	3	4	3	3
Participant 3	4	4	4	4	4	4	4	4	4	4	4	4
Participant 4	4	2	3	4	4	4	3	3	4	4	3	4
Participant 5	5	5	4	5	5	5	5	4	5	4	4	5
Participant 6	3	4	4	5	5	5	5	5	5	5	4	4
Participant 7	3	3	2	3	4	5	4	4	4	4	3	4
Participant 8	4	4	3	2	3	4	4	4	3	4	3	4
Participant 9	5	2	5	4	2	5	5	3	4	2	4	3
Participant 10	4	4	4	4	4	4	4	4	2	4	4	4
Participant 11	5	5	5	5	5	5	5	5	5	5	5	5
Participant 12	5	5	5	5	4	5	4	4	5	5	4	4
Participant 13	4	2	5	5	2	3	3	4	4	4	4	3
Participant 14	2	4	4	4	4	4	3	3	4	4	3	4
Participant 15	3	2	3	4	4	4	2	2	4	4	4	4
Participant 16	4	4	5	5	4	4	4	3	4	3	4	3
Participant 17	4	4	4	4	4	4	5	4	4	4	4	5
Participant 18	4	5	5	5	5	5	5	5	4	4	4	5
Level of Agreement	77.78	72.22	72.22	83.33	83.33	94.44	77.78	61.11	77.78	94.44	72.22	72.22
Mean	4.06	3.83	4.00	4.17	4.00	4.39	4.06	3.72	3.89	4.00	3.78	3.89
Median	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Mode	4.00	4.00	5.00	5.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Std. Dev.	0.87	1.15	1.03	0.99	0.91	0.61	0.87	0.83	0.90	0.69	0.55	0.83
CV	21.52	30.01	25.72	23.64	22.69	13.85	21.52	22.20	23.15	17.15	14.51	21.40
IQR	1.25	2.25	2.00	1.00	1.00	1.00	1.25	1.00	0.50	0.00	1.00	1.25

From Table 7.6 it can be seen that question 18 and 34 had particularly large IQR's due to their Q1's being quite low at 2.75 compared to their high Q3's at 5.00. The same phenomena occurred for question 10, 30 and 36.

From the quantitative analysis, all 23 Likert scale questions successfully passed the median, mode, standard deviation and CV consensus criteria. Several questions did not pass the Level of Agreement and mean criteria, although these are not core statistical measures. Nevertheless, the average for all the Level of Agreement percentages came to 76.09% while the grand mean (mean of all means) came to 3.93, both of which are very close their respective consensus requirement values of 80% and 4.00 respectively. The question numbers in Table 7.6, all of which did not pass the IQR's consensus criteria, are in contrast to the other definitive statistical measure, the median, in terms of consensus reached. In order to investigate this contrast further and resolve it, the qualitative data will have to be consulted in order to generate appropriate solutions that are in line with the participants' concerns/recommendations. This will be done in Section 7.5.3.

7.5.3 Open-ended disagreement/improvement question

If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.

A qualitative assessment was necessary to understand the reasoning behind the quantitative data. This was done by performing a basic thematic analyses on each comment that was interpretive and subjective by nature. The generated participant comments and their solutions from the open-ended disagreement/improvement questions can be seen in Appendix AA. Table AA1 to AA23 contains the open-ended question feedback to the 23 closed-ended questions listed in Tables 7.7 and 7.8, but since all the open-ended questions were identical in wording to one another, the wording of the closed-ended questions only headline Tables AA1 to AA23 and the subheadings of Section 7.5.3 for tracking purposes. As in Chapter 5, the solutions follow the same colour coding scheme: new additions are highlighted with green, alterations with yellow and general solution comments have no highlights. Additional words that have been inserted within definitions or headings are in italics.

7.5.3.1 Question 11: BMI Definition

Three common themes originated from Table AA1: 1) Limiting the definition to reconfiguration only, 2) The number of business model component changes which constitutes it as a BMI and 3) The complexity of the generated BMI definition. Firstly, Participant 4 commented "I do not see BMI as being limited to a (re)configuration problem only" with Participant 14 supporting this by stating "it is more than reconfiguration; it is often imagining something completely new." These two comments are supported by Figure 2.11 which illustrates BMI consisting of business model design and business model reconfiguration. Secondly, Participant 12 commented "a new BM (Business Model) need(s) changes in 2 or more (components) simultaneously", while Participant 13 stated "a business model innovation means a reconfiguration of more than one building blocks of a business model." Thirdly with regards to the complexity, Participant 9 mentioned "Try to shorten the definition and use less adjectives", which was supported by Participants 14 and 15 who stated, "Too complex" and "avoid definitions that try to encompass every nuance in a lengthy multi-line sentence" respectively. The amount of feedback received in Table AA1 supports the failed BMI definition's IQR consensus criterion value of 2.00.

Appropriate changes were made to the BMI definition in line with the three mentioned common themes from Table AA1. Therefore, the resulting definition for BMI for this research study is: A new

novel business model design or reconfiguration of activities, within two or more building blocks of a business model simultaneously, which is dynamically iterative in nature, and that managers can constantly reinforce to obtain a maintainable competitive advantage within old or new product/service markets in which the firm currently or wishes to compete in.

7.5.3.2 Question 13: White Space Definition

The definition of a white space opportunity passed the median's consensus criterion. However, it narrowly failed the IQR's consensus criterion with a value of 1.25. Participant 4 and 14 both chose a Likert scale answer of two, however both their comments were disregarded in Table AA2. Participant 4 stated "Stupid as it may seem: the definition in itself does not rule out the 'Poor Fit/Existing Customer' area." This was not deemed as important enough to be included within a final definition. Participant 14 commented "A white space can actually be a good fit with an organizations current state" which is not true according to this research study.

Participant 10 and 11 both chose a Likert scale answer of three. Participant 10 stated that "What is said makes sense, but could be said differently", however no suggestions were given. Participant 11 mentioned Ansoff's Matrix however this was deemed not to be out of context due to it focussing on business growth strategies. Therefore, Johnson's (2010b) definition of a white space remained unchanged in this research study.

7.5.3.3 Question 15: Design Table Division

The lack of feedback received from question 15 supports the consensus achieved surrounding the division of the three frameworks within the design table. It was noted however, from Participants 2's comment in Table AA1 and Participant 9's comment in Table AA3, that the Distribution Channels should form part of the CVP instead of Key Resources as required by Johnson (2010b).

7.5.3.4 Question 17: Design Table Comprehensiveness

Valuable feedback was gained from question 17 in Table AA4 regarding additional components to be added to the Business Model Canvas. Participant 3 suggested that an additional component called "Mission" must be added, while Participant 9 suggested that "Customer Retention", "Key Metrics" and "Competitive Advantage" be added. Customer Retention was disregarded due to Osterwalder & Pigneur (2010) stating that customer retentions are a motivation that drives Customer Relationships. Additionally, Competitive Advantage was disregarded due to it being a result of company strategy and can therefore not be considered as an individual building block on its own. Taking this into account, Figure 7.3 below illustrates the proposed business model components of the research study.

<table>
<tr><td colspan="5">Mission</td></tr>
<tr><td rowspan="2">Key Partners</td><td>Key Activities</td><td rowspan="2">Value Proposition</td><td>Customer Relationships</td><td rowspan="2">Customer Segments</td></tr>
<tr><td>Key Resources</td><td>Distribution Channels</td></tr>
<tr><td colspan="3">Cost Structure</td><td colspan="2">Revenue Streams</td></tr>
<tr><td colspan="5">Key Metrics</td></tr>
</table>

Figure 7.3: Proposed Business Model Structure developed from this research study

Mission was put across the entire template since it involves the entire business model, rather than individual components. This is supported by the final Design Guideline $HL4_3$ which states: Ensure the business model design process is aligned with the mission and vision of the company. Similarly,

the Key Metrics component spans across the whole template yet is situated underneath the Cost Structure and Revenue Stream components since, according to Participant 9, it serves as the "Core indicators of business progress and success." This is supported by the final Design Guideline $HL6_3$ which states: Use the backward income statement within the Revenue Stream and Cost Structure components in order to recognise and validate the other designed business model building blocks and evaluate their financial feasibility.

This design was supported by Aziz & Ebrashi (2016) who also proposed a new business model structure but for social enterprises. Although, instead of the name Key Metrics, Aziz & Ebrashi (2016) had a component with the name Impact and Uncertainty.

The design table had to be adjusted accordingly, taking into account the new proposed business model structure. The adjusted design table can be seen below in Table 7.9. The business model component Mission was subjectively put into the CVP.

Table 7.9: Proposed Design Table developed from this research study

Design Step	**Four Box Business Model components**	**Business Model Canvas and Design Guideline Components**	**Ten Innovation Types**
11.1	Customer Value Proposition	Customer Segments; Value Proposition; Customer Relationships; Distribution Channels; Mission; HL_3.	Product Performance; Product System; Service; Customer Engagement; Channel.
11.2	Key Resources	Key Resources; Key Partnerships; HL_3.	Network; Structure; Brand.
11.2	Key Processes	Key Activities; HL_3.	Process.
11.3	Profit Formula	Cost Structure; Revenue Streams; Key Metrics; HL_3.	Profit Model

7.5.3.5 Question 19: High-Level Phase Model Approach and Steps

According to the quantitative analysis, the approach and steps of the High-Level Phase Model was one of the major concerns, since it had an IQR consensus value of 2.25. Participants 3 and 13's feedback in Table AA5 were subsequently disregarded due to their suggestions already having been incorporated within the detail of the High-Level Phase Model. Participant 6 and 7 highlighted the Portfolio Stage as being issue, with Participant 7 stating "this is not a separate phase but an underlying process to manage all innovation projects in all different phases." It was decided to remove the Portfolio Stage, rename it to Portfolio Management, and span it across the entire High-Level Phase Framework. Its function was redefined as an overall innovation portfolio, capable of storing entities along the way and where BMI is managed as part of this portfolio.

Participant 9 was concerned of the visual flexibility of the model and commented "Although it has been highlighted as being flexible, the picture itself creates a too linear sequential impression of the process." Although Chapter 6 explained the iterative nature of the High-Level Phase Model in detail with additional pictures as was seen in Section 6.3.3 with the converging funnel part, these pictures were not included in the research summary document of the survey for the purposes of keeping it short and simple in order to maintain the reader's attention. However, it was clearly stated in the summary document and the survey that the High-Level Phase Model and BMI framework is flexible in nature. Nonetheless, the visual iterative mechanisms from Section 6.3.3 were subsequently added to the High-Level Phase Model in order to address Participant 9's concern.

7.5.3.6 Question 21: Logical Sequence of the High-Level Phase Model

The logical sequence of the High-Level Phase Model passed each descriptive statistic's consensus criterion, however valuable feedback was nonetheless gained from Participant 4 and 15 in Table AA6. Participant 4 stated that "If the claim is that the model is flexible, deliberating the logical sequence of phases is void." The inclusion of the numbered phases within the High-Level Phase Model was for reference purposes only within the research study. These numbered phases were subsequently removed to avoid confusion surrounding the flexibility.

7.5.3.7 Question 23: Phase 1 Approach and Steps

The approach and steps of Phase 1 successfully passed the median and IQR's consensus criterion. However, a considerable amount of feedback was received. Participant 4 stated "I do not like the model both being a 'flow diagram' and being flexible at the same time." This is however one of the key features that exist within the framework, as was described in Section 1.3. Additionally, Frankenberger *et al*. (2013) state that an acceptable paradox can exist between structure and flexibility in BMI.

Participant 9 suggested to "add in 17 sustainable development goals for the millennium into Step 10 (Understand)" because it "provides a bigger context for understanding - and can act as a source of extra opportunities." The United Nations adopted these goals in an attempt to achieve sustainable development and includes: no poverty, zero hunger, gender equality, quality education and climate action to name a few (The Goals, 2017). It was decided to include these 17 goals in the 'Look past present market and customer boundaries' action in Step 10, due to it involving the consideration of factors beyond conventional boundaries.

Participant 15 stated "step 7 (Assess Opportunities) needs to include an assessment that leverages current company assets or strengths, and thus an assessment of those much like a SWOT". Therefore, an additional SWOT analysis was included in Step 7 to be executed in terms of the opportunities identified. Finally, it was decided to remove Step 6 (Store Identified Opportunities) and Step 8 (Store Viable Opportunities) since these opportunities can be stored within the Portfolio Management component.

7.5.3.8 Question 25: Logical Sequence of Phase 1

The limited feedback in Table AA8 from question 25 supports the successful quantitative consensus achieved regarding Phase 1's logical sequence. Participant 9 stated that additional industries can be identified within Step 4 (Identify New Industry), by looking at the area between industries as well as the merging of industries. This was to be inserted as an additional action in Step 4.

7.5.3.9 Question 27: Phase 2 Approach and Steps

The main theme originating from question 27 in Table AA9 was the testing and validation of the Value Proposition in Step 11.1 (Design the CVP) before executing Step 11.2 (Identify the Key Resources and Key Processes) and Step 11.3 (Design the Profit Formula). Participant 13 commented "I would first do a validation round with customers to verify or falsify the key assumptions around the value proposition" while Participant 17 suggested testing the entire CVP. To be more thorough, an additional action was added to Step 11.1 in that the entire initial CVP design can be validated with customers in order to verify whether it is viable before deciding on the Key Resources, Key Activities and Profit Formula.

7.5.3.10 Question 29: Logical Sequence of Phase 2

No alterations or new actions were added to the framework from the feedback gained in Table AA10. The inclusion and positioning of Step 12 (Consider Business Model Archetypes) was especially supported by Participants 9, 13 as well as Participant 6 who commented "I do see that there will be an interplay between 11 and 12, influencing each other until you get a final business model concept."

7.5.3.11 Question 31: Phase 3 Approach and Steps

A large amount of valuable feedback was gained from question 31 in Table AA11, which supports the reason for question 30's high IQR value of 2.00. It was realised that Step 13's (Store Business Model Prototypes) current definition, which is to capture the designed business model concept from Phase 2 as well as generate and test a tangible Value Proposition prototype, was not sufficient as is. Participant 6 commented that "If it is similar to the prototyping steps as described by the Business Model Canvas, then yes." Osterwalder & Pigneur's (2010) prototyping technique was reviewed and subsequently included within Step 13. Osterwalder & Pigneur (2010) suggest the following regarding a business model prototype:

1. Napkin Sketch: A very basic and rough business model canvas is sketched where the idea around it is briefly described using only some elements.
2. Elaborated Canvas: A more in depth and detailed canvas is generated through which all the business elements are investigated in terms of what is needed to make the business model viable.
3. Business Case: The Elaborated Canvas is assessed through the generation of a simulated spreadsheet in which the models profit potential is estimated and different scenarios are run based on different assumptions.
4. Field Test: Customer acceptance and feasibility of the potentially new business model is investigated through field tests with actual customers within the market place.

Participant 8 suggested "There should be a stronger reiteration of all the Phase 1 (Step 10) + Phase 2 + Phase 3, to kill certain BMIs early on, without the need of an assessment or a final Phase 4 testing." For this reason, it was decided to add in additional input/output exchanges from Phase 2 and 3, to Step 10 (Understand), which would also help to address the overall issue of participants requiring more iteration and flexibility. Additionally, Step 17 (Test) was removed since its concept is covered within Osterwalder & Pigneur's (2010) prototype field testing step. It must be noted that the Field Test must be done early, inexpensively and frequently from which lessons are learnt as required by Johnson (2010b) and as originally suggested for Step 17.

Finally, it was decided to make Step 13 part of Step 14 (Assess Business Model Prototypes) into a Step called 'Feasibility Testing'. The idea was that prototyping was a type of feasibility and therefore it made more logical sense to combine it into one step rather than having it separate. Additionally, since Step 13 served as a storage step for the output of Step 11 (Design Business Model Concepts), which was no longer needed due to addition of the Portfolio Management component spanning across the High-Level Phase Model. This new Feasibility Testing step follows an overall "build-measure-learn" approach, as suggested by Participant 12, due to the combination of the prototyping concept as well as Step 14's original set of tools and iterative output.

7.5.3.12 Question 33: Logical Sequence of Phase 3

Four comments were provided in Table AA12 from which no alteration or new solution was created. Participant 7 suggested an increase in iteration which was addressed by the inserted input/output exchange between Phase 3 and Step 10, as explained in Section 7.5.3.11.

7.5.3.13 Question 35: Portfolio Stage Approach and Steps

The Portfolio Stage was arguably one of the biggest issues within the survey. This is supported by question 34's IQR value of 2.25 in Table 7.5 which can be traced back to question 18's IQR value 2.25 in Table 7.4 in which the Portfolio Stage was the main issue in the High-Level Phase Model, as explained in Section 7.5.3.5.

Since the Portfolio Stage, renamed to Portfolio Management, was moved to span across the whole High-Level Phase Model, a void had to be filled to take its place. Participant 9 suggested a stage called "Market Readiness Assessment" be used in Table AA13. Since this is done to varying degrees in Step 3 (Analyse Industry), 7 (Assess Opportunities) and 10 (Understand), it was rather decided to call the Portfolio Stage's replacement 'Full Deployment Assessment Phase'. It serves the same role as the original Portfolio Stage where it acts as a key decision point – deciding whether the business model will continue to Phase 4 or be put on hold.

Participant 5 suggested that an additional action be added and stated, "Conditions can be specified for each business model in the portfolio to be launched according to the opportunity". Step 15 (Store Final Business Model) was subsequently renamed to 'Specify and Consider Final Business Model Launch Conditions', where a separate new action for the storage of the business model within the portfolio was created since Participant 4 commented "This seems to be an endless loop by definition once one chooses 'no'." Additionally the Launch Gate was removed from the High-Level Phase Model, as the Full Deployment Assessment Phase fulfils its function.

7.5.3.14 Question 37: Phase 4 Approach and Steps

The issue of testing carried through in the feedback received from question 36 and was therefore the main theme within Table AA14. Participants 2, 7, 8 and 17 mentioned within their comments the idea that testing taking place within Step 17 (Test) was too late. Taking this into consideration in line with the other comments and proposed changes, the following alterations were made to Phase 4:

- Rename Step 16 within the Deployment Phase: The original Step 16 (Implement) was renamed to 'Scaled Implementation'. Once the final white space business model is launched it is scaled up in size by implementing it into a bigger market segment.
- Rename Step 18 and insert into the Refinement Phase: Since the original Step 17 was removed due to the insertion of the Field Testing action within Phase 3, the original Step 18 (Scale, Manage and Adjust) had to fall back. Additionally, this step was renamed to 'Operate, Manage and Refine'. The concept of operating the business model was added to Step 18's heading to emphasise that it must still be functional in order for lessons to be learnt and therefore to be refined. This step therefore falls into the Refinement Phase of the High-Level Phase Model.
- New Exploitation Phase Step: In order to encompass the entire High-Level Phase Model within the framework it was decided to add the Exploitation Phase, and therefore the conceptual Exploitation Framework, as the final step. This ensures the High-Level Phase Model and framework are consistent with one another

7.5.3.15 Question 38: Logical Sequence of Phase 4

Participants 7 and 8 requested increased iteration, where Participant 8 stated "I don't think that Implementation, Test and Scaling up are such linear processes, they are highly iterative and usually across different levels of your so called 'Phases'." This was not taken into account since: 1) The High-Level Phase Model and Step 18 illustrates how Phase 4 iterates across various phases, 2) Step 17 (Test) was removed from Phase 4 and made part of Phase 3 (Feasibility) which is highly iterative in nature and 3) Phase 4's logical sequence successfully passed its consensus criteria.

7.5.3.16 Survey Section 11: Framework Usability

In general, participants reiterated previously mentioned concerns in Section 11 and therefore little new, valuable information was gained in terms of suggestions or improvements. This can be supported by the successful consensus criteria values in of all the questions within Section 11, namely questions 40 to 54, except for questions 44 and 54 which narrowly failed the IQR consensus criteria with a value 1.25.

Two important concepts were addressed in the feedback gained in line with question 44 in Table AA18. Participant 4 commented "the framework is a foundation for decision making, rather than being a 'decision-making process' itself. To be a 'decision-making process', at least a specification of HOW decisions are made is required." As stated in Section 1.7, the decision of how a 'Yes' or 'No' output is decided upon at the key points within the framework is based on the judgement of the framework user. This comment supports the fact that the framework acts as a supportive decision-making base. On the other hand, Participant 14 and 15 mentioned that the current framework was too complex. Since the goal of the framework was to be generic yet comprehensive in nature, it will probably be altered and simplified when used for future research, like a case study for example.

In terms of the feedback gained in line with question 54, concerning the contribution to literature, Participant 1 was the only participant to have chosen to answer with '1. Disagree' and commented "I do not see relevant additions to the St. Gallen Business Model Navigator methodology." This comment was disregarded due to the previous support shown for Step 12 (Consider Business Model Archetypes). Participant 9 stated "As a Masters this has contributed to literature by putting together and re-configuring literature domains, but no novel information was added as is needed for a PhD." It was stated in the invitation email that the author is a Master's student however it must be assumed that Participant 9 may have forgotten this over time and hence was unsure about the level of research being done and therefore chose '3. Undecided'. Participant 13, who stemmed directly from industry, commented "I don't know all the current literature to be able to answer this question properly" and subsequently chose '3. Undecided'.

Other insightful suggestions gained in Section 11 are listed below:

- Future Research: Case study involving the framework with Start-ups versus established organisations.
- Future Research: Adapt the High-Level Phase Model's structure so that it is executed in small circular iterations with spiral loops. An inner spiral can consist of the converging/funnel part and outer spiral can entail the diverging/bugle part.
- The framework can be used as a reference for a business model design process and for additional value and assistance in the workplace in terms of responsibility and accountability management.

- The experts agree that the framework's main objective in question 52 is achieved, which is supported by its median and IQR values of 4.00 and 1.00 respectively.

7.6 Final solution illustration, description and discussion

Taking into consideration the new information gained from the validation process, this section aims to propose and briefly describe the final solution of the research study. The final High-Level Phase Model and white space BMI framework proposed for this research study can be seen on the following two pages in Figure 7.4 and 7.5. The main changes to the High-Level Phase Model are summarised in the list below:

- The Portfolio Stage, which was renamed to Portfolio Management, was moved to span across the entire High-Level Phase Model, where it acts as an overall innovation portfolio capable of storing entities along the way and where BMI is managed as part of this portfolio.
- The Full Deployment Assessment Phase took the role of the original Portfolio Stage with an additional action to specify launch conditions for the business model.
- The launch gate and phase labels were removed and additional visual flow and iterations were added as illustrated by the transparent arrows.

Table 7.10 below summarises the most prominent changes to the original framework in terms new step numbers (#), new headings and extra actions.

Table 7.10: Prominent changes to the original framework

High-Level Model Phase	**Step #**	**Heading**	**Additional new actions**
Opportunity Identification and Understanding	4	Identify New Industry	Consider the area between industries, as well as the merging of industries.
	6	Assess Opportunities	Execute a SWOT analysis in terms of the opportunities identified.
	8	Understand - Look Past Present Market and Customer Boundaries	Consider the 17 sustainable development goals.
Business Model Concept	9.1.1	Design the CVP and Test with Customers	Test the initial CVP design with customers.
Feasibility	11	Feasibility Testing	1) Napkin Sketch, 2) Elaborated Canvas, 3) Business Case, 4) Field Test.
Full Deployment Assessment	12	Specify and Consider Final Business Model Launch Conditions	Specify and consider the launch conditions for the final business model for that specific opportunity.
	13	Store Final Business Model in Portfolio	The final business model is stored in the portfolio if it is not ready to be launched.
Deployment	14	Scaled Implementation	Scale up business model when performing implementation.
Refinement	15	Operate, Manage and Refine.	No new actions but the operation of the business model is emphasised.
Exploitation	16	Exploitation	Execute the Exploitation Framework

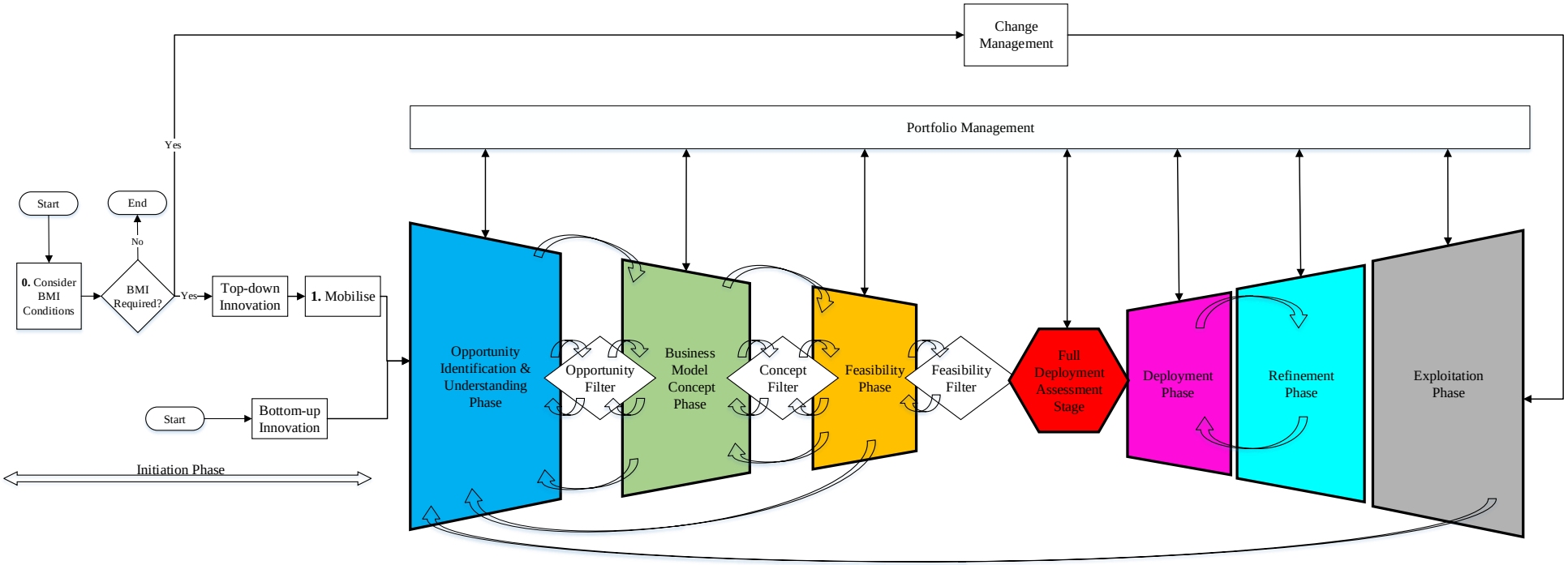


Figure 7.4: Proposed High-Level Phase Model developed from this research study

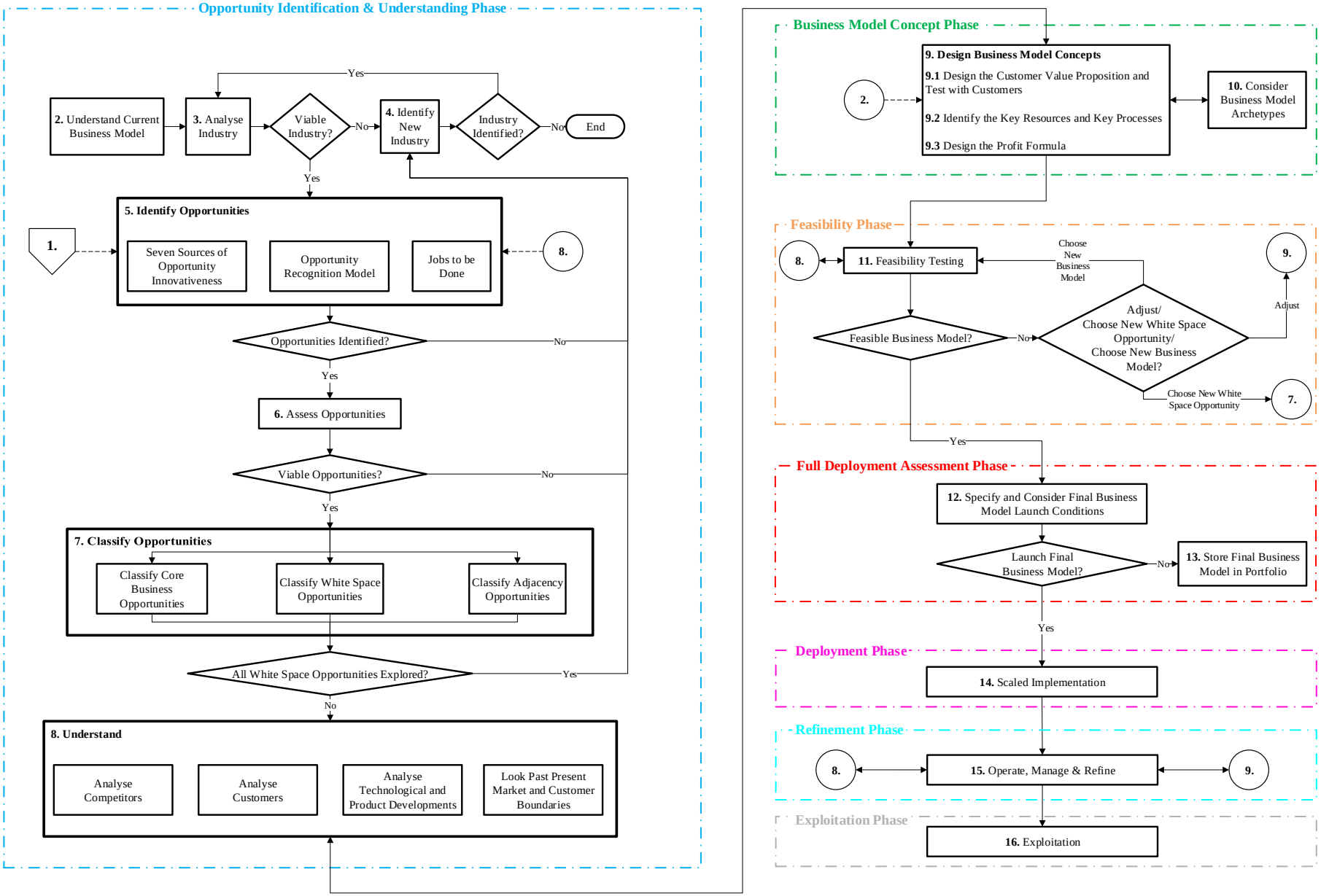


Figure 7.5: Final white space BMI framework developed from this research study

Recall that Steps 6 (Store Identified Opportunities), 8 (Store Viable Opportunities), 13 (Store Business Model Prototypes) and 17 (Test) were removed from the first initial framework that was developed in Figure 6.3, hence the change in step numbering within the final framework as illustrated in Table 7.10 and Figure 7.5 from this point forward.

The Initiation Phase was subjectively improved, in addition to the received feedback, by making the BMI Conditions (the trigger of the framework) Step 0. This was connected to the Top-Down Innovation approach since this approach is proactive in nature. Change Management, which like Portfolio Management can be considered as phase interactive, still remains an important consideration however within the Bottom-Up Innovation approach further along within the framework process.

With regards to the Opportunity Identification and Understanding Phase, its process and step actions remained fairly unchanged except for Step 4, Step 6 and Step 8's additional actions, which can be considered.

The Business Model Concept Phase received a change with regards to action 9.1, as well as an output leading from Step 9 (Design Business Model Concepts) back to Step 8 (Understand). This new exchange of information can contain the initial CVP design for example, which can be tested within the Customer Analysis. Moreover, the exchange explains how Step 8 can be altered according to changes in design of the entire business model.

The Feasibility Phase contains Step 11 (Feasibility Testing), which consists of two main parts: 1) Prototyping and 2) Assessment tools. The prototyping part consists of the four new actions listed in Table 7.10, as well as the original generation and testing of a physical Value Proposition prototype. The assessment tools are the original set of tools that were described within Section 6.3.5.2. These two parts are to be performed in parallel with one another – while prototyping takes place the assessment tools will be able to evaluate the prototype business models continually from start to finish. This will result in a constant evaluation and subsequently, a constant generation of information leading to a continual refinement of the business model prototypes. This continual stream of refinement would not be able to take place if the two parts follow after one another in a linear fashion. Finally, Step 11 (Feasibility Testing), and therefore the Feasibility Phase, has an additional exchange with Step 8 (Understand). This new exchange can consist of: 1) The physical Value Proposition - it can be tested with customers, compared to other competitors, undergo a lifecycle analysis or create new possible blue oceans around the Value Proposition itself, and 2) Step 11's generated information – the understanding process can be refined in terms of the new information obtained from executing Step 11. Step 8 can alternatively improve and optimise Step 11.

The Business Model Concept and Feasibility phases lead to the initial generation of detailed business model designs - within the experimental segment of the market. Based on all the information generated, the most successful business model can then be chosen, after which the process then moves on to Step 12 (Specify and Consider Final Business Model Launch Conditions). Step 13 (Store Final Business Model in Portfolio) was added to highlight that the 'No' decision output leads to the final business model being stored within the portfolio in the High-Level Phase Model. Since the framework is flexible and adaptable, the possibility exists that numerous business models could pass the feasibility assessment and enter the Full Deployment Assessment Phase. Launch conditions that are triggered first by the market will then result in that specific business model, from the group, passing through into the Deployment Phase. This could increase the probability of launching.

Scaling was added to implementation to generate Step 14 (Scaled Implementation), where the final business model design is enlarged in scale and implemented within the entire market. The implemented business model must then be operated, managed and refined in Step 15.

The operation in Step 15 results in the refinement of the final business model. Once it has been decided whether the business model will be kept separate or be made part of the parent organisation in Step 15, this idea can be elaborated on further - to create more value through the generation of more business models by executing the suggested Exploitation Framework in Step 16 (Exploitation).

An acceptable paradox exists the within the structure of the solution and its iterations. Although the proposed solution can come across as structured, the actual process is more flexible than presented and involves the overlapping of stages and activities.

Appropriate changes were made to the proposed solution of the research study by analysing the quantitative and qualitative data generated from the validation process. Taking this into account, the changes which were made and the fact that the consensus criteria of the median never failed, it can be said that a successful validation was achieved in this chapter. Additionally, the framework adhered to the following key five features:

1. The framework should be *generic* enough to be used within different industries and not be limited to a specific application.
2. The process of moving through the framework should be rational and pilot a *structured* and organised decision-making process.
3. The framework should be able to be effectively *practicable* within industries and not be limited to a specific application.
4. The framework should contain a substantiated, inclusive and *comprehensive* approach to the problem by integrating various fields of discipline.
5. The framework should be *flexible* and *adjustable* enough to be used within specific situations.

Finally, the proposed solution can support companies to assist them in making better-informed decisions. These decisions are specifically concerning how to systematically identify white space opportunities and develop an innovative business model. Future research can determine through a second Delphi validation round, whether full consensus can be achieved for the changes that were made in line with the feedback from the experts.

7.7 Chapter summary

Chapter 7 briefly described the validation theory, method, approach and survey design all of which followed on from Chapter 5. The quantitative and qualitative data generated from the survey was illustrated and descriptively analysed, after which appropriate changes were made to the proposed solution resulting in the final solution of the research study. These changes were in line with the feedback obtained from the experts. The final proposed solution was then presented and briefly discussed. Lastly, the validation process showed consensus was reached surrounding the solutions five features and main objective.

The following research objectives, as stated in Section 1.3, are fully achieved in Chapter 7:

8. Develop a framework capable of systematically identifying a white space opportunity and developing an innovative business model.
9. Validate the white space BMI framework.

The following chapter concludes the dissertation.

CHAPTER 8
CLOSURE

The purpose of this chapter is to provide a complete overview of the conducted research and draw a conclusion. A consolidation of the previous information from Chapters 1 to 7 is given in Section 8.1. Section 8.2 concludes the research study and describes how its objectives were achieved, as well as its contribution towards theory and practitioners. Finally, in Section 8.3, the limitations of the research study are provided followed by a list of recommendations for future research. Figure 8.1 below shows the position of this final chapter in relation to the research study.

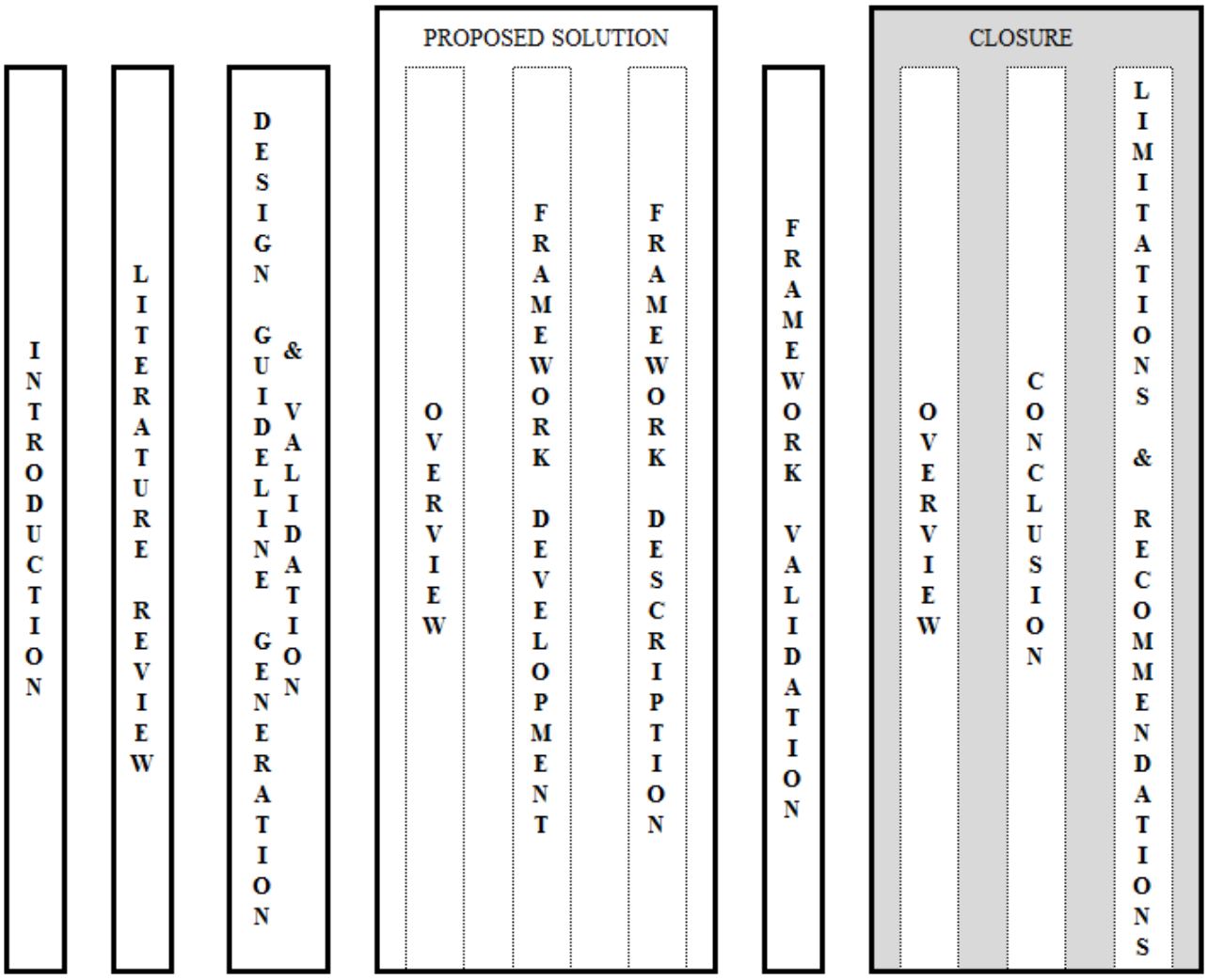


Figure 8.1: The position of chapter 8 relative to the research study

8.1 Overview

This study proposed a white space BMI support framework for companies that want to identify a white space opportunity and develop an innovative business model. The study consists of eight chapters, namely: Enterprise Engineering and White Spaces, Links to other academic fields, Literature Review Summary and Synthesis, Design Guideline Generation and Validation, Proposed Solution, Framework Validation and lastly Closure. This section aims to provide a brief overview of the eight mentioned chapters.

Chapter 1 serves as the introduction to the study. First, a background of the study is provided, followed by a statement of the research problem statement, questions and objectives. Thereafter, the research contribution, design and methodology are described, followed by a brief description of the delineations and ethical implications of the study. Lastly, the outline of the research study is presented.

Chapters 2 and 3 present the associated research domains within the field of the study. Chapter 2 introduces the high-level field of Enterprise Engineering, after which the fields of business models and BMI are presented. Lastly, the important core concept of a white space opportunity is described. Chapter 3 builds on Chapter 2 by spanning to related but important fields of study. The following topics are addressed: innovation and innovation management, business strategy and entrepreneurial opportunities.

Chapter 4, which summarises the literature review and synthesises it, provides a detailed summary of Chapter 2 and 3, as well as summarising the prominent BMI and innovation frameworks. This is followed by an overall synthesis of the literature review, where specifically the critical process stages and structural business model components are identified.

Chapter 5 presents the business model design guideline development and validation process. An initial set of guidelines are developed from literature sources. These guidelines are validated, refined and expanded using the inputs from industry and academic experts in the field. A survey was used to collect their inputs. The theory of validity is briefly described, after which the method and approach to data collection are presented. Thereafter, the survey design is described in detail in terms of the following six sections: target population and sampling, data collection process, initial survey validation and clearance, data collection, data analysis and the survey questions themselves. The quantitative and qualitative results of the survey are illustrated, analysed and described for two validation rounds, after which consensus is reached. Lastly, the final set of design guidelines are presented in Chapter 5.

Chapter 6 introduces, develops, presents and describes the proposed solution (the first version of the business model design framework) to the research study in a detailed manner. The proposed solution was developed by considering the final design guidelines, as well as a comprehensive analysis of the literature review. This process enables an inclusive view of the research problem and the generation of the solution itself. The chapter provides an overview of the solution, a detailed description of how it was developed, followed by a comprehensive step by step description of the framework itself in terms of its objectives, inputs, motivations, actions and outputs. Finally, additional work was done by moving outside the scope of the study to include an extra Exploitation Framework, as a theoretical concept which can be validated in future research.

Chapter 7 presents the validation process of the proposed solution. The validation process stems directly from Chapter 5 and therefore the validation theory, method and approach to data collection, as well as the survey design sections are briefly reintroduced. The proposed solution is validated

through a mixed method online survey, using industry and academic experts. The quantitative and qualitative results of the survey were illustrated and descriptively analysed. Suitable changes are made to the proposed solution itself and briefly described.

This section provides a brief overview to the research study, while section 8.2 concludes the research study in terms of its objectives and contributions.

8.2 Conclusion

White space opportunities require organisations to travel outside of their safe core area and into an unfamiliar and possibly dangerous zone. These white spaces, which if exploited can result in a big increase in company value, are mostly avoided due to a lack of understanding and lack of reliable processes to guide organisations from start to finish. The process of seizing white space opportunities using BMI is a new field of study with a lack of academic material which directly addresses this field.

BMI is currently a popular field of study, but it is a concept which many businesses and managers do not fully understand. Thus, resulting in a lack of importance within the business world. Even though numerous frameworks have been designed by various authors, a lack of consensus still exists regarding the process of BMI, as well as its definition. Many of these frameworks address only the few main high-level BMI phases, which are simplistic and shallow in nature.

Based on literature, this is particularly true for the design phase. Scholars have not converged on the components which constitute a business model, possibly resulting in the lack of business model design guidelines at a component level. It is also seen from the review of the various prominent BMI frameworks, that most current frameworks focus on innovating their current business model. Yet, a white space requires the design of a completely new business model. Literature lacks an inclusive and detailed step-by-step framework containing suitable systematic processes, tools and design guidelines, which addresses the concept of BMI and white space opportunities.

Thus, this study proposes a comprehensive framework, which can reliably guide managers through the BMI process of identifying a white space opportunity and then developing an innovative business model. The application of the entire framework is specifically aimed at larger, settled businesses where a structured approach is more important. Larger companies must consider how new opportunities impact their current business model whereas smaller businesses do not face this problem.

However, individual parts of the framework can possibly possess the potential to be used by entrepreneurs or smaller businesses to assist them in identifying new market opportunities, as well as how to go about designing, developing and evaluating a new business model. Therefore, the framework aims to be generic, structured and flexible in nature which can be adapted to specific applications.

Recalling the main research objective:

Develop an illustrative, comprehensive and detailed BMI framework - which contains appropriate processes, tools and building-block design guidelines – capable of systematically identifying a white space opportunity and developing an innovative business model.

The main research objective was divided into 10 sub-objectives, as stated in Section 1.3. These sub-objectives were achieved in the following chapters as illustrated in Table 8.1 at the top of the following page.

Table 8.1: Research objectives corresponding to each chapter

Chapter	**Objectives**
Chapter 2: Enterprise Engineering and White Spaces	1; 2; 3; 4; 5; 7
Chapter 3: Links to other academic fields	7
Chapter 4: Literature Review Summary and Synthesis	6
Chapter 5: Design Guideline Generation and Validation	6; 8
Chapter 6: Proposed Solution	7; 8
Chapter 7: Framework Generation and Validation	8; 9

The main research objective and its sub-objectives were achieved through a comprehensive literature review and validation processes. Numerous business model, BMI and innovation definitions, frameworks and stages are identified and assessed. Current BMI limitations are identified and a distinction is made to separate the common BMI processes from the ones needed to pursue a white space opportunity. The concept of a white space is defined and clarified. The literature review identifies an initial set of business model design guidelines, after a two round Delphi validation process was used with experts to investigate, expand and finalise the design guidelines. The proposed solution is developed by considering the literature review and design guidelines to identify high-level phases, critical stages, critical activities and suitable tools which was used to design a systemic white space BMI framework. This framework was then validated and refined through a one round validation process with experts, which resulted in the final solution which was validated as being capable of guiding companies through the systematic BMI decisions of how to identify a white space opportunity and then develop an innovative business model.

The results and main findings of the research study can be split between the business model design guidelines and the solution to the research study, which consists of the High-Level Phase Model and white space BMI framework. Table 8.2 summarises the main findings of the study.

Table 8.2: Summary of main findings within the research study

Category	**Main findings**	
Design Guidelines	The Profit Formula, and therefore backward income statement, must be used as a final downstream process that will test and validate the financial feasibility of the business model building blocks. Therefore, the design sequence is: 1) Design the CVP, 2) Identify the Key Resources and Key Processes and 3) Design the Profit Formula, however this is a flexible sequence.	
	The participants agreed with the mobilise, identify, understand, design, assess, implement, test, scale, manage and adjust stages but emphasised that they are flexible and do not have to be followed in a strict linear fashion.	
	The business model design guidelines are not rigid but flexible in nature.	
	Each business model building block required the generation of innovation, which achieved through a five-stage innovation process.	
	Business model patterns/archetypes can be considered for each building block.	
	The identification, consideration and generation of stakeholder value.	
Research Study Solution	High Level Phase Model	The Portfolio Stage, renamed to Portfolio Management, acts as an overall innovation portfolio in the High-Level Phase Model capable of storing entities along the way and where BMI is managed as part of this portfolio.
		The High-Level Phase Model was not illustratively flexible enough and therefore additional iterations were included, and phase labels removed.

Research Study Solution	White Space BMI Framework	The experts required additional iteration and flexibility between the understanding, design and feasibility steps.
		Testing was executed too late in the initial framework design and was therefore moved to the Feasibility Phase.
		Two new additional business model building blocks were identified: 1) Mission and 2) Key Metrics.
		Additional new actions were added to various framework steps.
		Consensus was reached surrounding the framework's features and main objective.

In addition to Table 8.2, a new definition for BMI was developed. The main findings in Table 8.2 assist in achieving the main and sub-objectives of the research study.

From the information presented in Section 8.2, the main and sub-objectives of the research study are achieved. The final white space BMI framework, which contains appropriate processes, tools and design guidelines, can therefore identify a white space opportunity and develop an innovative business model.

This research study contributes to the theoretical, as well as practical world. The theoretical contribution to the three core research domains of the research study is summarised in Table 8.3.

Table 8.3: Summary of the theoretical contribution of the research study

Research Domain	**Theoretical Contribution**
Business Models	The identification of building block design guidelines.
	The identification of two new building blocks: 1) Mission and 2) Key Metrics.
BMI	The generation of a new BMI definition.
	Clarification on the process of BMI in terms of high-level phases, critical stages, critical activities and appropriate tools.
	The design of a comprehensive BMI framework which can assist the decision-making process of companies.
	Clarification on the systematic process of how a market opportunity is identified.
	The design of a conceptual exploitation framework.
White Spaces	Clarification on the systematic process of how a white space opportunity is identified and classified.
	Significantly advances Johnson's Repeatable BMI Process through the design of a new and comprehensive BMI framework which can identify a white space opportunity and develop and innovative white space business model.
	The design of a conceptual Exploitation Framework.

A contribution is made toward practitioners through the design guidelines and the final solution of the research study. The final set of design guidelines enhances the framework by being able to practically assist the user to design the various building blocks of a business model. The research study's final solution presents an illustrative process, which companies can follow in a practical manner to assist them as to which decisions can be made. Additionally, the white space BMI framework contains illustrative tools, with tool descriptions, which can be executed in a practical manner. The design of the simulated Profit Formula makes a specific contribution in this regard.

From the author's perspective, the final solution for the research study has certain advantages and disadvantages. The study provides clear guidelines and options for a company that wants to grow through BMI and white space opportunities. Although structured and comprehensive and therefore more suited to larger organisations, the solution is flexible in nature and possess the potential to be used by entrepreneurs. The solution includes a good balance of the theoretical and practical realms -

containing a vast amount of theoretical concepts but structured in a practical manner which increases the tangibility, and therefore the understanding, of the solution to any user - which can lead to the solution being used as a tool for education. Additionally the practical aspects of the framework increases the chances of it being implemented within industry. Therefore the final solution can be adapted to various types of users. Drawbacks include: 1) The deployment (and therefore implementation), refinement and exploitation phases are theoretical and with limited structure and content on assisting the user, 2) The solution requires a certain level of education and innovation experience in order to understand it, 3) The user must use his/her own judgment and 4) The solution does not address the risk management aspects of BMI.

Therefore, this study proposes a comprehensive white space BMI support framework which can guide companies and managers through a systematic BMI process capable of identifying a white space opportunity, and developing an innovative business model. Sections 8.3 discusses the limitations and recommendations of the research study.

8.3 Limitations and recommendations for future research

Section 8.3.1 describes the limitations of the research study after which Section 8.3.2 describes the recommendations for future research.

8.3.1 Limitations

In this section the limitations or conditions outside the researcher's control are stated and briefly described. Limitations, which are an important and inevitable aspect of any research study, refer to conditions that may influence or limit the outcome of the study. The following limitations were experienced throughout the research study:

- Participant Feedback: The time taken and the way in which the validation participants answered and filled out the online surveys despite clear instructions being present.
- Participant Numbers: Participant numbers were limited to 12 and 18 for the design guidelines and proposed solution's validation's respectively. The Delphi method partially compensated for this by consisting of two rounds, but the proposed solution's validation only consisted of one round.
- Case Study: The framework was not practically tested or evaluated in an actual case study. This could be for further research.
- Prior Knowledge: Basic knowledge of business models, BMI and innovation is required to use the white space BMI framework.
- Support to Decision-Making: The framework only provides support and guidance to the types of decisions which can be made, not *how* the decisions are made. The user of the framework is required to use his/her/their own judgment to determine the output result.
- Risk Management: The framework did not focus on the concept of risk management specifically, even though a white space is considered riskier to pursue, than a core or adjacent opportunity. However, risk management is partially addressed within the build-measure-learn approach of the framework which can systematically reduce risk.

- Limited Deployment and Refinement Phase Content: Implementation, operation, management and refinement of the final business model was not addressed in detail.

The list of above limitations can be addressed to advance the framework further. The following section lists the recommendations for future research.

8.3.2 Recommendations for future research

Throughout the development of the proposed solution, recommendations were identified. Moreover, previously listed limitations are considered in the following recommendations:

1. Validation Processes: The validation process of the design guidelines as well as the final solution can be broadened to encompass a large number of participants to receive an increased amount of feedback. The changes made to the final High-Level Phase Model and white space BMI framework can be validated through an additional validation process. Finally, the practicality of the framework can be tested and evaluated through a case study.

2. Mission and Key Metric Component Design Guidelines: The two additional components that were identified and added to the Business Model Canvas in the proposed business model structure of the research study, can undergo the same Delphi method as in Chapter 5 to generate design guidelines for these two components.

3. Exploitation Framework: The suggested concept of the Exploitation Framework can be validated to assess the concept and investigate it further as to which possible changes are required.

4. Step Content Validation: The detailed theory and tools contained within each framework step can be validated which would result in a holistic validation of the framework.

5. Decision-making Criteria: The step content can be investigated further to generate criteria which could determine how decisions must be made. This would result in a more reliable process.

6. Further Elaboration: Risk management, deployment and implementation can be expanded on further in more detail.

7. Profit Formula: The simulated Profit Formula has potential to be expanded to encompass other financial aspects such a balance sheet and cash flow statement and their related ratios. This would assist the user more in terms of reliability to choose the correct business model in the Feasibility Phase.

8. Feedback: In terms of the feedback received from Chapter 7, the following can be investigated further.

    8.1 Spiral High-Level Framework: The High-Level Phase Model can be converted into a spiral concept which is executed in small circular iterations with an inner and outer spiral.

    8.2 Start-ups versus Established Organisations: A case study involving the use of the framework with start-ups versus established companies to gauge its adaptability in terms of the life cycle of a company.

The list of recommendations above can provide interesting opportunities for future research to improve the research study's solution further as well as advance its core and related research fields.

References

Abowitz, D.A. & Toole, T.M. (2009). Mixed method research: Fundamental issues of design, validity, and reliability in construction research. *Journal of Construction Engineering and Management*, 136(1). [Online]. Retrieved June 13, 2017: http://ascelibrary.org/doi/abs/10.1061/(ASCE)CO.1943-7862.0000026

Acharya, A.S., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: Why and how of it. *Indian Journal of Medical Specialties*, 4(2). [Online]. Retrieved May 19, 2017: https://www.researchgate.net/publication/256446902_Sampling_Why_and_How_of_it_Anita_S_Acharya_Anupam_Prakash_Pikee_Saxena_Aruna_Nigam

Adler, M., & Ziglio, E. (1996). *Gazing into the oracle: The Delphi method and its application to social policy and public health*. London: Jessica Kingsley Publishers.

Albright, S. C., Winston, W., & Zappe, C. (2010). *Data analysis and decision making*. Mason: Cengage Learning.

Allen, I.E. & Seaman, C.A. (2007). Likert scales and data analyses. *Quality progress*, 40(7). [Online]. Retrieved May 15, 2017: http://rube.asq.org/quality-progress/2007/07/statistics/likert-scales-and-data-analyses.html

Al-Tarawneh, H. (2012). The Main Factors beyond Decision Making. *Journal of Management Research* 4(1). [Online]. Retrieved May 10, 2016: http://macrothink.org/journal/index.php/jmr/article/view/1184

Amit, R. & Zott, C. (2001). Value Creation in e-business. *Strategic Management Journal*, 22(6-7). [Online]. Retrieved April 19, 2016: http://onlinelibrary.wiley.com/doi/10.1002/smj.187/abstract

Amit, R. and Zott, C. (2012). Creating value through business model innovation. *MIT Sloan Management Review*, 53(3). [Online]. Retrieved January 19, 2017: http://sloanreview.mit.edu/article/creating-value-through-business-model-innovation/

Anderson, C. (2010). Presenting and evaluating qualitative research. *American journal of pharmaceutical education*, 74(8). [Online]. Retrieved May 2, 2017: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2987281/

Andrews, D., Nonnecke, B. & Preece, J. (2003). Electronic survey methodology: A case study in reaching hard-to-involve Internet users. *International Journal of Human-Computer Interaction*, 16(2). [Online]. Retrieved May 3, 2017: https://www.researchgate.net/publication/220302348_Electronic_Survey_Methodology_A_Case_Study_in_Reaching_Hard-to-Involve_Internet_Users

Ardichvili, A. & Cardozo, R. (2000). A model of the entrepreneurial opportunity recognition process. *Journal of Enterprising Culture*, 8(2). [Online]. Retrieved May 9, 2016: http://www.worldscientific.com/doi/abs/10.1142/S0218495800000073

Argyrous, G. (2011). *Statistics for research: with a guide to SPSS*. Singapore: Sage Publications.

Armstrong, J. S. (2001). *Principles of forecasting: a handbook for researchers and practitioners*. New York: Springer Science & Business Media.

Aronson, J. (1995). A pragmatic view of thematic analysis. *The qualitative report*, 2(1). [Online]. Retrieved July 27, 2017: http://nsuworks.nova.edu/cgi/viewcontent.cgi?article=2069&context=tqr

Ayers, J. (2006). *Handbook of supply chain management*. New York: Auerbach Publications.

Aziz, H.A. & El Ebrashi, R. (2016). A Business Model Design Process for Social Enterprises: The Critical Role of the Environment. *World Academy of Science, Engineering and Technology, International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, 10(5). [Online]. Retrieved September 27, 2017: http://waset.org/publications/10004398/a-business-model-design-process-for-social-enterprises-the-critical-role-of-the-environment

Babbie, E. and Mouton, J. (2003) *The practice of social research*. Cape Town: Oxford University Press.

Baden-Fuller, C. & Morgan, M. (2010). Business models as models. *Long range planning*, 43(2). [Online]. Retrieved April 8, 2016: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.466.3977&rep=rep1&type=pdf

Barney, J.B., (2014). *Gaining and sustaining competitive advantage*. Harlow: Pearson Education Limited.

Baron, R. (2004). The cognitive perspective: a valuable tool for answering entrepreneurship's basic "why" questions. *Journal of Business Venturing*, 19(2). [Online]. Retrieved May 2, 2016: http://www.sciencedirect.com/science/article/pii/S0883902603000089

Beiske, B. (2007). *Research Methods: Uses and limitations of questionnaires, interviews and case studies*. Munich: GRIN Verlag.

Benjamin, P. C., Mayer, R. J., Blinn, T. M., Marshall, C., & Tye, R. (1995). *Toward an Environment for Collaborative Enterprise Engineering*. Unpublished paper delivered at the *Society for Enterprise Engineering Conference*, Orlando. June.

Berry, T. (2016). *What is a SWOT Analysis* [Online]. Retrieved December 16, 2016: http://articles.bplans.com/how-to-perform-swot-analysis/

Bharadwaj, S.G., Varadarajan, P.R., & Fahy, J. (1993). Sustainable competitive advantage in service industries: a conceptual model and research propositions. *The Journal of Marketing*, 57(4). [Online]. Retrieved June 07, 2017: https://www.jstor.org/stable/1252221

Bonakdar, A. (2015). *Business Model Innovation: Studies on business model design, protection, and anchoring*. Unpublished doctoral dissertation, University of St. Gallen.

Bonney Jr, F.L., (2008). *The Importance of Market Opportunity Recognition Mechanisms in Interfunctional Management Teams*. Unpublished doctoral dissertation, University of Tennessee.

Boons, F. & Lüdeke-Freund, F. (2013). Business models for sustainable innovation: state-of-the-art and steps towards a research agenda. *Journal of Cleaner Production*, 45(1). [Online]. Retrieved April 27, 2017: http://www.sciencedirect.com/science/article/pii/S0959652612003459

Breiby, E. & Wanberg, M. (2011). *Successful Business Model Innovation*. Unpublished master's thesis, Norwegian University of Science and Technology.

Brown, S. A. & Coopers, P. W. (1999). *Customer relationship management: A strategic imperative in the world of e-business*. Toronto: John Wiley & Sons.

Bryman, A. & Bell, E. (2011). *Business Research Methods*. Oxford: Oxford University Press.

Bryman, A. (2012). *Social research methods*. Oxford: Oxford University Press.

Bucherer, E. (2011). *Business model innovation-guidelines for a structured approach*. Unpublished doctoral dissertation, St. Gallen University.

BusinessNews Publishing. (2014). *Summary: Seizing the White Space: Review and Analysis of Johnson's Book*. Brussels: Primento.

Buttle, F. (2009). *Customer relationship management: concepts and technologies*. New York: Routledge.

Bygrave, W. (2010). *Portable MBA in Entrepreneurship*. Hoboken: John Wiley & Sons.

Bygrave, W., Hay, M., Ng, E. & Reynolds, P. 2002. Executive forum: a study of informal investing in 29 nations composing the Global Entrepreneurship Monitor. *Frontiers of Entrepreneurship Research*, 5(2). [Online]. Retrieved June 1, 2016: https://www.researchgate.net/profile/Paul_Reynolds7/publication/247511955_Executive_forum_a_study_of_informal_investing_in_29_nations_composing_the_Global_Entrepreneurship_Monitor/links/5416ff9c0cf2788c4b35fb9b.pdf

Cambridge. (2017). *Cambridge Dictionary*. [Online]. Retrieved November 15, 2017: https://dictionary.cambridge.org/

Casadesus-Masanell, R. & Ricart, J.E. (2010). From strategy to business models and onto tactics. *Long range planning*, 43(2). [Online]. Retrieved September 20, 2017: http://www.businessmodelcommunity.com/fs/root/8oex1-casadesus_et_ricart.pdf

Casadesus-Masanell, R. & Ricart, J.E. (2011). How to design a winning business model. *Harvard business review*, 89(1/2). [Online]. Retrieved May 28, 2017: https://hbr.org/2011/01/how-to-design-a-winning-business-model

Casadesus-Masanell, R., Tarzijan. J. 2012. When One Business Model Isn't Enough. *Harvard Business Review*, 90(1-2) http://www.hbs.edu/faculty/Pages/item.aspx?num=41584

CFA, I. (2015). *Level 1: Financial Reporting and Analysis.* Charlottesville: CFA Institute.

Charter, M. & Clark, T. (2007). *Sustainable Innovation*. [Online]. Retrieved February 19, 2017: http://research.uca.ac.uk/694/1/Sustainable_Innovation_report.pdf

Chen, I. J., & Popovich, K. (2003). Understanding customer relationship management (CRM) People, process and technology. *Business process management journal*, 9(5). [Online]. Retrieved February, 2017: http://www.emeraldinsight.com/doi/pdf/10.1108/14637150310496758

Chesbrough, H. 2007. Business model innovation: it's not just about technology anymore. *Strategy and Leadership*, 35(6). [Online]. Retrieved April 4, 2016: http://www.emeraldinsight.com/doi/full/10.1108/10878570710833714

Chesbrough, H. and Rosenbloom, R.S. (2002). The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies. *Industrial*

and corporate change, 11(3). [Online]. Retrieved April 22, 2017: https://academic.oup.com/icc/article/11/3/529/1044102

Chesbrough, H. W. (2006). *Open innovation: The new imperative for creating and profiting from technology*. Boston: Harvard Business Press.

Chesbrough. H. (2010). Business Model Innovation: Opportunities and Barriers. *Long Range Planning*, 43(2). [Online]. Retrieved September 29, 2016: http://www.sciencedirect.com/science/article/pii/S0024630109000569

Choudhury, R. (2014). *Disruptive Innovation Vs. Sustaining Innovation* [Online]. Retrieved August 10, 2016: https://www.linkedin.com/pulse/20141123100030-18176179-disruptive-innovation-vs-sustaining-innovation

Christensen, C. & Hwang, J. (2008). Disruptive Innovation In Health Care Delivery: A Framework For Business-Model Innovation. *Health Affairs* 27(5). [Online]. Retrieved April 18, 2017: http://content.healthaffairs.org/content/27/5/1329.full.pdf+html

Christensen, C. & Raynor, M. (2013). *The Innovator's Solution: Creating and Sustaining Successful Growth*. Boston: Harvard Business Review Press.

Christensen, C., Anthony, S., Berstell, G., & Nitterhouse, D. (2007). Finding the Right Job For Your Product. *MIT Sloan Management Review*, 48(3). [Online]. Retrieved August 8, 2016: http://search.proquest.com/openview/ebffb113173c940b9b23387ad47905ca/1?pq-origsite=gscholar

Chung, K. (2004). *Entrepreneurial Opportunity Identification Through Bisociative Mode of Thinking*. Unpublished master's thesis, Hong Kong Polytechnic University.

Comes, S. & Berniker, L. (2008). *From Strategy to Execution*. Berlin: Springer.

Creswell, J. (2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. California: SAGE Publications.

Creswell, J.W. (2008). *Mixed Methods Research: Design and Procedures*. University of Pretoria. [Online]. Retrieved May 16, 2017: http://www.up.ac.za/media/shared/Legacy/Education/mixed-methods-research_-design-and-procedures_-by-john-w-creswell.zp37294.ppt

De Jong, M., & van Dijk, M. (2015). Disrupting beliefs: A new approach to business-model innovation. *McKinsey Quarterly*, 3(1). [Online]. Retrieved July 3, 2017: https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/disrupting-beliefs-a-new-approach-to-business-model-innovation

De Leeuw, E.D., 1992. *Data quality in mail, telephone and face to face surveys*. Unpublished doctoral dissertation, Utrecht University.

De Vet, E., Brug, J., De Nooijer, J., Dijkstra, A., & De Vries, N.K. (2004). Determinants of forward stage transitions: a Delphi study. *Health education research*, 20(2). [Online]. Retrieved July 15, 2017: https://www.ncbi.nlm.nih.gov/pubmed/15328302

De Wit, B. & Meyer, R. (2010). *Strategy: Process, Content, Context.* Hampshire: Cengage Learning.

Delbecq, A.L., Van de Ven, A.H., & Gustafson, D.H. (1975). *Group techniques for program planning: A guide to nominal group and Delphi processes*. Illinois: Pearson Scott Foresman.

Dietz, J., Antonia Albani, J., Aveiro, D., Babkin, E., Barjis, J., Caetano, P., Huysmans, P., Iijima, J., Kervel, S., Mulder, H., Land, M., Proper, H., Sanz, J., Terlouw, L., Tribolet, J., Verelst, J., &Winter, R. 2013. The discipline of enterprise engineering. *International Journal of Organisational Design and Engineering*, 3(1). [Online]. Retrieved April 10, 2016: http://www.inderscienceonline.com/doi/full/10.1504/IJODE.2013.053669

Dobbs, M. (2014). Guidelines for applying Porter's five forces framework: a set of industry analysis templates. *Competitiveness Review*, 24(1). [Online]. Retrieved October 29, 2017: http://www.emeraldinsight.com/doi/abs/10.1108/CR-06-2013-0059?mobileUi=0&journalCode=cr

Dodgson, M., Gann, D. M., & Phillips, N. (2014). *The Oxford handbook of innovation management*. Oxford: Oxford University Press.

Doz, Y. & Kosonen, M. (2010). Embedding Strategic Agility: A Leadership Agenda for Accelerating Business Model Renewal. *Long Range Planning*, 43(2). [Online]. Retrieved July 18, 2016: http://www.sciencedirect.com/science/article/pii/S0024630109000570

Drucker, P. (1985). *Innovation and entrepreneurship: Practice and principles*. New York: Harper & Row.

Du Preez, N. D. & Louw, L. (2008). A framework for managing the innovation process. *Management of Engineering & Technology* (pp. 546-558). Stellenbosch: University of Stellenbosch.

Du Toit, D. (2014). *Decision-Making Framework for Inventory Management of Spare Parts in Capital-Intensive Industries*. Unpublished master's thesis, University of Stellenbosch.

Eckhardt, J.T. & Shane, S.A. (2003). Opportunities and entrepreneurship. *Journal of management*, 29(3). [Online]. Retrieved August 16, 2017: http://journals.sagepub.com/doi/abs/10.1177/014920630302900304

Egger, R., Gula, I., & Walcher, D. (2016). Towards a Holistic Framework of Open Tourism. In R. Egger, I. Gula, D. Walcher (Ed.), *Open Tourism: Open Innovation, Crowdsourcing and Co-Creation Challenging the Tourism Industry* (pp. 3-16). Salzburg: University of Salzburg.

Engen, M. & Holen, I. E. (2014). Radical versus incremental innovation: the importance of key competences in service firms. *Technology Innovation Management Review*, 4(4). [Online]. Retrieved September 3, 2016: http://search.proquest.com/openview/3f43c67267dabca839d085513dc6cc71/1?pq-origsite=gscholar&cbl=2034500

English, J.M. & Kernan, G.L. (1976). The prediction of air travel and aircraft technology to the year 2000 using the Delphi method. *Transportation Research*, 10(1). [Online]. Retrieved June 29, 2017: www.sciencedirect.com/science/article/pii/0041164776900940

Enkel, E., Gassmann, O., & Chesbrough, H. (2009). Open R&D and open innovation: exploring the phenomenon. *R&d Management*, 39(4). [Online]. Retrieved September 6, 2017: http://onlinelibrary.wiley.com/doi/10.1111/j.1467-9310.2009.00570.x/full

Evans, J. R. & Mathur, A. (2005). The value of online surveys. *Internet research*, 15(2). [Online]. Retrieved May 10, 2017: www.emeraldinsight.com/doi/abs/10.1108/10662240510590360

Fink, A., Kosecoff, J., Chassin, M., Brook, R.H. (1984). Consensus methods: characteristics and guidelines for use. *American journal of public health*, 74(9). [Online]. Retrieved July 07, 2017: https://www.ncbi.nlm.nih.gov/pubmed/6380323

Fiss, P. C. (2011). Building better causal theories: A fuzzy set approach to typologies in organization research. *Academy of Management Journal*, 54(2). [Online]. Retrieved October 11, 2017: http://amj.aom.org/content/54/2/393.short

Flick, U. (2011). *Introducing research methodology: A beginner's guide to doing a research project*. London: Sage.

Foss, N.J. (1997). *Resources, firms, and strategies: a reader in the resource-based perspective*. Oxford: Oxford University Press.

Framework. (2017). [Online]. Retrieved November 22, 2017: http://www.businessdictionary.com/definition/framework.html

Frankenberger, K., Weiblen, T., Csik, M., & Gassmann, O. (2013). The 4I-framework of business model innovation: A structured view on process phases and challenges. *International Journal of Product Development*, 18(3-4). [Online]. Retrieved May 23, 2017: http://www.inderscienceonline.com/doi/abs/10.1504/IJPD.2013.055012

Gaglio, C.M & Taub, R.P. (1992). Entrepreneurs and opportunity reccognition. In N.C. Churchill, S. Birley, W.D. Bygrave, D.E. Muzyka, C. Wahlbin, & W.E. Wetzel (Ed.), *Frontiers of Entrepreneurship Research* (pp. 136-147). Wellesley: Babson College.

Gaglio, C.M. & Katz, J.A. (2001). The psychological basis of opportunity identification: Entrepreneurial alertness. *Small business economics*, 16(2). [Online]. Retrieved September 18, 2017: https://link.springer.com/article/10.1023/A:1011132102464

Gassmann, O., Frankenberger, K., & Csik, M. (2014). *Business Model Navigator*. Harlow: Pearson Education Limited.

Gaynor, G. (2002). *Innovation by design: what it takes to keep your company on the cutting edge*. New York Amacom.

Geissdoerfer, M., Savaget, P., & Evans, S. (2017). The Cambridge business model innovation process. *Procedia Manufacturing*, 8(1). [Online]. Retrieved June 13, 2017: https://www.researchgate.net/publication/308887847_The_Cambridge_Business_Model_Innovation_Process

Geterud, J. & Tegern, S. (2012). *Business Model Innovation: An empirically derived framework for early stage business model innovation*. Unpublished master's thesis, Chalmers University of Technology.

Giesen, E., Berman, S., Bell, R., & Blitz, A. (2007). Three ways to successfully innovate your business model. *Strategy and Leadership*, 35(1). [Online]. Retrieved March 28, 2016: http://www.brandztech.com/cache/fck_files/file/19.pdf

Giesen, E., Riddleberger, E., Christner, R., & Bell, R. (2010). When and how to innovate your business model. *Strategy & Leadership*, 38(4). [Online]. Retrieved September 6, 2017:

https://www.researchgate.net/publication/243462334_When_and_how_to_innovate_your_business_model

Gordon, T. J., Glenn, J. C., & Jakil, A. (2005). Frontiers of futures research: What's next? *Technological forecasting and social change*, 72(9). [Online]. Retrieved October 24, 2017: http://www.sciencedirect.com/science/article/pii/S0040162505001459

Gous, H. & Schutte, C.S.L. (2012). *Using Knowledge Networks to support Innovation*. Unpublished master's thesis, Stellenbosch University.

Green, P., 1982. *The Content of a College-Level Outdoor Leadership Course*. [Online]. Retrieved August 9, 2017: https://eric.ed.gov/?id=ED276546

Greene, J.C. (2008). Is mixed methods social inquiry a distinctive methodology? *Journal of Mixed Methods Research*, 2(1). [Online]. Retrieved June 10, 2017: http://journals.sagepub.com/doi/abs/10.1177/1558689807309969?journalCode=mmra

Gupta, S., & Chintagunta, P. K. (1994). On using demographic variables to determine segment membership in logit mixture models. *Journal of Marketing Research*, 31(1). [Online]. Retrieved March October 26, 2017: https://www.jstor.org/stable/3151952?seq=1#page_scan_tab_contents

Hansen, M. T. & Birkinshaw, J. (2007). The innovation value chain. *Harvard business review*, 85(6). [Online]. Retrieved August 12, 2016: https://www.researchgate.net/profile/Julian_Birkinshaw/publication/6255929_The_Innovation_Value_Chain/links/0046351a9930281631000000.pdf

Hauser, J. & Clausing, D. (1988). *The House of Quality*. [Online]. Retrieved December 1, 2016: https://hbr.org/1988/05/the-house-of-quality

Heiko, A. (2012). Consensus measurement in Delphi studies: review and implications for future quality assurance. *Technological forecasting and social change*, 79(8). [Online]. Retrieved March 8, 2017:

Hercules, L. (2015). *Incremental Innovation vs Radical Innovation*. [Online]. Retrieved September 2, 2016: https://www.linkedin.com/pulse/incremental-innovation-vs-radical-learie-hercules

Hillstrom, L.C. (2017). *Value Creation*. [Online]. Retrieved December 20, 2016: http://www.referenceforbusiness.com/management/Tr-Z/Value-Creation.html

Hoogervorst, J. (2009). *Enterprise Governance and Enterprise Engineering*. Diemen: Springer.

Horrigan, J. (2001). Online Communities: Networks that nurture long-distance relationships and local ties. [Online]. Retrieved April 20, 2017: http://www.pewinternet.org/files/old-media/Files/Reports/2001/PIP_Communities_Report.pdf.pdf

Hsu, C.C. & Sandford, B.A. (2007). The Delphi technique: making sense of consensus. *Practical assessment, research & evaluation*, 12(10). [Online]. Retrieved May 26, 2017: http://pareonline.net/pdf/v12n10.pdf

Hubley, A. M., & Zumbo, B. D. (1996). A dialectic on validity: Where we have been and where we are going. *The Journal of General Psychology*, 123(3). [Online]. Retrieved April 1, 2017: http://www.tandfonline.com/doi/abs/10.1080/00221309.1996.9921273

Hult, G.T.M., Hurley, R.F., & Knight, G.A. (2004). Innovativeness: Its antecedents and impact on business performance. *Industrial marketing management*, 33(5). [Online]. Retrieved April 25, 2017: www.sciencedirect.com/science/article/pii/S0019850103001160

Huselid, M.A., Jackson, S.E., & Schuler, R.S. (1997). Technical and strategic human resources management effectiveness as determinants of firm performance. *Academy of Management journal*, 40(1). [Online]. Retrieved September 20, 2017: http://www.markhuselid.com/pdfs/articles/1997_AMJ_Technical_and_Strategic_SHRM.pdf

Inauen, M. & Schenker-Wicki, A. (2011). The impact of outside-in open innovation on innovation performance. *European Journal of Innovation Management*, 14(4). [Online]. Retrieved October 18, 2017: http://www.emeraldinsight.com/doi/abs/10.1108/14601061111174934

Jacobs, J. M. (1997). *Essential assessment criteria for physical education teacher education programs: A Delphi study*. Unpublished doctoral dissertation, West Virginia University.

Jaruzelski, B., Staack, V., & Goehle, B. (2014). Global innovation 1000: Proven paths to innovation success, 77. *Strategy+business*. [Online]. Retrieved October 24, 2017: https://www.strategy-business.com/article/00295?pg=all

Johnson, M.W. (2010b). *Seizing the White Space: Business Model Innovation for Growth and Renewal*. Boston: Harvard Business Review Press.

Johnson, M.W. 2010a. *Seizing the White Space: an interview with Mark Johnson*. [Online]. Retrieved March 2, 2016: http://www.emeraldgrouppublishing.com/learning/management_thinking/interviews/pdf/johnson_m.pdf

Jolly, A. (2008). *The Innovation Handbook: How to Develop, Manage and Protect Your Most Profitable Ideas*. London: Kogan Page Publishers.

Kagermann, H., Johnson, M., Christensen, C. (2008). Reinventing your business model. *Harvard business review*, 86(12). [Online]. Retrieved April 11, 2016: https://hbr.org/2008/12/reinventing-your-business-model

Kano, K. H., Hinterhuber, H. H., Bailon, F., & Sauerwein, E. (1984). How to delight your customers. *Journal of Product and Brand Management*, 5(2), 6-17.

Kaplan, R.S. and Norton, D.P., 2006. How to implement a new strategy without disrupting your organization. *Harvard business review*, 84(3). [Online]. Retrieved September 6, 2017: https://www.ncbi.nlm.nih.gov/pubmed/16515159

Kaplan, S. 2011. *Five Reasons Companies Fail at Business Model Innovation*. [Online]. Retrieved December 9, 2016: https://hbr.org/2011/10/five-reasons-companies-fail-at

Keeley, L., Walters, H., Pikkel, R., & Quinn, B. (2013). *Ten types of innovation: The discipline of building breakthroughs*. Hoboken: John Wiley & Sons.

Keen, P. (1980). MIS Research: Reference Disciplines and Cumulative Tradition. *Proceedings of the First International Conference on Information Systems* (pp. 9-18). Cambridge: Massachusetts Institute of Technology.

Kim, W.C & Mauborgne, R. (2005). *Blue Ocean Strategy: How to create uncontested market space and make the competition irrelevant*. Boston: Harvard Business School Press.

Kim, W.C & Mauborgne, R. (2017). *Blue Ocean Tools*. [Online]. Retrieved September 11, 2017: https://www.blueoceanstrategy.com/tools/

Kocher, M. G., & Sutter, M. (2006). Time is money—Time pressure, incentives, and the quality of decision-making. *Journal of Economic Behavior & Organization*, 61(3). [Online]. Retrieved May 12, 2016: http://www.sciencedirect.com/science/article/pii/S0167268105001873

Krackhardt, D. (1995). Entrepreneurial opportunities in an entrepreneurial firm: a structural approach. *Entrepreneurship: Theory and Practice*, 53(2). [Online]. Retrieved June 14, 2016: http://go.galegroup.com/ps/anonymous?id=GALE%7CA18122169&sid=googleScholar&v=2.1&it=r&linkaccess=fulltext&issn=10422587&p=AONE&sw=w&authCount=1&isAnonymousEntry=true

Kruger, W. (1996). Implementation: The core task of Change Management. *CEMS Business Review* 1(1), 77-96.

Kühn, W.J. & Louw, L. (2017). Business Model Innovation for Seizing White Space Opportunities: A Design Framework. *South African Institute for Industrial Engineering (SAIIE) Conference* (pp. 209-222). Stellenbosch: University of Stellenbosch.

Lacey, A. & Luff, D. (2001). Qualitative data analysis. Sheffield: Trent Focus.

Lambert, D. M. & Cooper, M. C. (2000). Issues in supply chain management. *Industrial marketing management*, 29(1). [Online]. Retrieved October 18, 2017: https://www.scribd.com/document/46956763/Issues-in-Supply-Chain-Mangement-Lambert-and-Cooper-2000-1

Lankhorst, M. (2009). *Enterprise Architecture at Work: Modelling, Communication and Analysis*. Berlin: Springer.

Latif, R. A., Mohamed, R., Dahlan, A. H., Nor, H., & Mat, M. Z. (2016). Using Delphi Technique: Making Sense of Consensus in Concept Mapping Structure and Multiple Choice Questions. *Education in Medicine Journal*, 8(3). [Online]. Retrieved June 2, 2017: http://web.b.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=21801932&AN=118954898&h=7ywPRJ6RwxiHIVbA55XfReXKr8dVwsHh%2fXmZ9d5d8fO4s9DnBzMW4TG6ttuMTip9%2fJd3mwAXrCjpROdKcxwAkw%3d%3d&crl=f&resultNs=AdminWebAuth&resultLocal=ErrCrlNotAuth&crlhashurl=login.aspx%3fdirect%3dtrue%26profile%3dehost%26scope%3dsite%26authtype%3dcrawler%26jrnl%3d21801932%26AN%3d118954898

Lavrakas, P.J. (2008). *Encyclopedia of survey research methods*. California: SAGE Publications.

Lazzarotti, V., & Manzini, R. (2009). Different modes of open innovation: a theoretical framework and an empirical study. *International journal of innovation management*, 13(4). [Online]. Retrieved September 9, 2017: http://www.worldscientific.com/doi/abs/10.1142/S1363919609002443

Leedy, P.D. and Ormrod, J.E. (2001). Practical Research: Planning and Design. Harlow: Pearson Education Limited.

Liles, D. H., Johnson, M. E., Meade, L., & Underdown, D. R. (1995). Enterprise Engineering: A Discipline? *Society for Enterprise Engineering Conference Proceedings* (pp. 45-47). Austin: University of Texas.

Lim, W. & Xavier, S. 2015. Opportunity Recognition Framework: Exploring the Technology Entrepreneurs. *American Journal of Economics*, 5(2). [Online]. Retrieved June 23, 2016: http://article.sapub.org/10.5923.c.economics.201501.10.html

Lindgardt, Z. & Reeves, M. (2011). *How to develop and implement a new business model.* Boston Consulting Group. [Online]. Retrieved March 14, 2016, http://www.amanet.org/training/media_files/2010/develop-new-business-model/index.htm

Linstone, H. A. & Turoff, M. (1975). *The Delphi method: Techniques and applications*. Boston: Addison-Wesley.

Litwin, M. (1995). *How to Measure Survey Reliability and Validity*. Los Angeles: SAGE Publications.

Long, W. & Mcmullan, W.E. (1984). Mapping the new venture opportunity identification process. In J.A. Hornaday, F.A. Tardeley, K.H. Vesper. *Frontiers of Entrepreneurship Research* (pp. 567-591). Wellesley: Babson College.

Loughlin, K.G. & Moore, L.F. (1979). Using Delphi to achieve congruent objectives and activities in a pediatrics department. *Academic Medicine*, 54(2). [Online]. Retrieved August 29, 2017: https://www.ncbi.nlm.nih.gov/pubmed/762686

Ludwig, B. (1997). Predicting the future: Have you considered using the Delphi methodology. *Journal of extension*, 35(5). [Online]. Retrieved August 7, 2017: https://www.researchgate.net/publication/285763230_Predicting_the_future_Have_you_considered_the_Delphi_methodology

Ludwig, B. (1997). Predicting the future: Have you considered using the Delphi methodology. *Journal of extension*, 35(5). [Online]. Retrieved July 02, 2017: https://www.joe.org/joe/1997october/tt2.php

Marais, S.J. & Schutte, C.S.L. (2009). The Development of Open Innovation Models to Assist the Innovation Process. *South African Institute of Industrial Engineering (SAIIE) Conference* (pp. 101-116), Stellenbosch: University of Stellenbosch.

Markides, C. (2008). *Game-Changing Strategies: How to create new market space in established industries by breaking the rules.* San Francisco: John Wiley and Sons.

Markides, C.C. (2013). Business model innovation: What can the ambidexterity literature teach us? *The Academy of Management Perspectives*, 27(4). [Online]. Retrieved August 19, 2017: http://amp.aom.org/content/27/4/313.abstract

Markman, G. & Phan, P. (2011). *The competitive dynamics of entrepreneurial market entry*. Gloucestershire: Edward Elgar Publishing.

McGrath, R. (2010). Business Models: A Discovery Driven Approach. *Long Range Planning* 43(2/3). [Online]. Retrieved September 29, 2016: http://www.sciencedirect.com/science/article/pii/S0024630109000508

Meertens, L. O., Iacob, M. E., Nieuwenhuis, L. J., Van Sinderen, M. J., Jonkers, H., & Quartel, D. (2012). Mapping the business model Canvas to ArchiMate. *Proceedings of the 27th annual ACM symposium on applied computing* (pp. 1694-1701). Enschede: University of Twente.

Mihailescu, M. & Teo, Y.M. (2010). Dynamic resource pricing on federated clouds. *Proceedings of the 2010 10th IEEE/ACM International Conference on Cluster, Cloud and Grid Computing* (pp. 513-517). Singapore: National University of Singapore

Mitchell, D. & Coles, C. (2003). The ultimate competitive advantage of continuing business model innovation. *Journal of Business Strategy*, 24(5). [Online]. Retrieved August 1, 2017: http://www.emeraldinsight.com/doi/abs/10.1108/02756660310504924

Mootee, I. (2010). *White Space Mapping – Seeing the Future Beyond the Core* [Online]. Retrieved March 31, 2016: http://www.innovationmanagement.se/2013/06/13/white-space-mapping-seeing-the-future-beyond-the-core/

Murphy, M.K., Black, N.A., Lamping, D.L., McKee, C.M., Sanderson, C.F., Askham, J., & Marteau, T. (1998). Consensus development methods, and their use in clinical guideline development. *Health technology assessment*, 2(3). [Online]. Retrieved July 30, 2017: https://www.ncbi.nlm.nih.gov/pubmed/9561895

Newcomer, K.E., Hatry, H.P., & Wholey, J.S. (2015). *Handbook of practical program evaluation*. San Francisco: John Wiley & Sons.

O'Cass, A. and Ngo, L.V. (2011). Examining the firm's value creation process: a managerial perspective of the firm's value offering strategy and performance. *British Journal of Management*, 22(4). [Online]. Retrieved August 3, 2017: http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8551.2010.00694.x/abstract

Oliver, C. (1997). Sustainable competitive advantage: Combining institutional and resource-based views. *Strategic management journal*, 18(9). [Online]. Retrieved June 02, 2017: www.wiggo.com/mgmt8510/readings/readings7/oliver1997smj.pdf

Oosthuizen, C. (2016). *Project Portfolio Management Best Practice and Implementation: A South African Perspective*. Unpublished master's thesis, University of Stellenbosch.

Ostelo, R. W., & de Vet, H. C. (2005). Clinically important outcomes in low back pain. *Best Practice & Research Clinical Rheumatology*, 19(4). [Online]. Retrieved April 24, 2017: http://www.sciencedirect.com/science/article/pii/S1521694205000264

Osterwalder, A. & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Hoboken: John Wiley & Sons.

Osterwalder, A., Pigneur, Y., Bernarda, G., & Smith, A. (2014). *Value proposition design: How to create products and services customers want*. Hoboken: John Wiley & Sons.

Oxford. (2017). English Oxford Living Dictionaries. [Online]. Retrieved November 15, 2017: https://en.oxforddictionaries.com/

Parvatiyar, A. & Sheth, J. N. (2001). Customer relationship management: Emerging practice, process, and discipline. *Journal of Economic & Social Research*, 3(2). [Online]. Retrieved October 10, 2017: https://www.researchgate.net/publication/312458264_Customer_relationship_management_Emerging_practice_process_and_discipline

Phillips, A. (2015). OH research: How to conduct surveys. *Occupational Health & Wellbeing*, 67(1). [Online]. Retrieved May 12, 2017: https://www.researchgate.net/.../283660019_OH_research_How_to_conduct_surveys

Pilav-Velić, A. & Marjanovic, O. (2016). Integrating open innovation and business process innovation: Insights from a large-scale study on a transition economy. *Information & Management*, 53(3). [Online]. Retrieved September 1, 2017: http://www.sciencedirect.com/science/article/pii/S0378720615001433

Piu, G. (2011). *Storyboards*. [Online]. Retrieved December 13, 2016: http://www.businessdesigntools.com/2011/12/storyboards/

Porter, M. (1998). *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: The Free Press.

Porter, M.E. (2008). *Competitive advantage: Creating and sustaining superior performance*. New York: Simon and Schuster.

Prahalad, C.K. & Hamel, G. (2006). The core competence of the corporation. *Harvard Business Review*, 68(3). [Online]. Retrieved March 23, 2016: http://www.cuhkemba.net/Nova_Management/07/0712/071223,%2030/The_Core_Competence_of_the_Corporation.pdf

Putnam, J.W., Spiegel, A.N., & Bruininks, R.H. (1995). Future directions in education and inclusion of students with disabilities: A Delphi investigation. *Exceptional Children*, 61(6). [Online]. Retrieved August 9, 2017: http://journals.sagepub.com/doi/abs/10.1177/001440299506100605

Raman, M., Stephenaus, R., Alam, N., & Mphil, M.K. (2008). Information Technology in Malaysia: E-service quality and Uptake of Internet banking. *Journal of Internet Banking and Commerce*, 13(2). [Online]. Retrieved May 21, 2017: http://www.icommercecentral.com/open-access/information-technology-in-malaysia-eservice-quality-and-uptake-of-internet-banking.php?aid=38430

Ranadive, V. (1999). *The power of now: How winning companies sense and respond to change using real-time technology*. New York: McGraw-Hill Professional.

Raskin, M.S. (1994). The Delphi study in field instruction revisited: Expert consensus on issues and research priorities. *Journal of Social Work Education*, 30(1). [Online]. Retrieved July 21, 2017: http://www.tandfonline.com/doi/abs/10.1080/10437797.1994.10672215

Rawes, E. (2017). *The Differences Between Value-Based Pricing & Cost-Based Pricing* [Online]. Retrieved December 7, 2016: http://smallbusiness.chron.com/differences-between-valuebased-pricing-costbased-pricing-23095.html

Rayens, M.K. & Hahn, E.J. (2000). Building consensus using the policy Delphi method. *Policy, politics, & nursing practice*, 1(4). [Online]. Retrieved July 17, 2017: https://www.researchgate.net/publication/254121878_Building_Consensus_Using_the_Policy_Delphi_Method

Richardson, J. (2008). The business model: an integrative framework for strategy execution. *Strategic change*, 17(5-6). [Online]. Retrieved June 27, 2016: http://onlinelibrary.wiley.com/doi/10.1002/jsc.821/full

Rogers, M.R. & Lopez, E.C. (2002). Identifying critical cross-cultural school psychology competencies. *Journal of school psychology*, 40(2). [Online]. Retrieved June 28, 2017: www.sciencedirect.com/science/article/pii/S0022440502000936

Romero, D. & Molina, A. (2015). A Multidisciplinary Framework and Toolkit to Innovate Customer-Centric New Product Development. *International ICE-Conference on Engineering, Technology and Innovation*, (pp. 1-10). Monterey: Monterrey Institute of Technology and Higher Education.

Rosenbloom, B. (2013). Functions and institutions: The roots and the future of marketing channels. *Journal of Marketing Channels*, 20(3-4). [Online]. Retrieved April 22, 2017: http://www.tandfonline.com/doi/abs/10.1080/1046669X.2013.803423

Rossman, G. & Wilson, B. (1985). Numbers and words combining Quantitative and Qualitative Methods in a Single Large-Scale Evaluation Study. *Evaluation Review*, 9(5). [Online]. Available: http://journals.sagepub.com/doi/abs/10.1177/0193841X8500900505

Rowe, G., & Wright, G. (1999). The Delphi technique as a forecasting tool: issues and analysis. *International journal of forecasting*, 15(4). [Online]. Retrieved May 5, 2017: http://www.sciencedirect.com/science/article/pii/S0169207099000187

Sanders, R. (1987). The Pareto principle: its use and abuse. *Journal of Services Marketing*, 1(2). [Online]. Retrieved August 13, 2017: http://www.emeraldinsight.com/doi/abs/10.1108/eb024706

Santos, J., Spector, B., & Van Der Heyden, L. 2009. *Toward a Theory of Business Model Innovation within Incumbent Firms* [Online]. Retrieved March 28, 2016: https://flora.insead.edu/fichiersti_wp/inseadwp2009/2009-16.pdf

Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research methods for business students*. London: Pearson.

Sawhney, M., Wolcott, R., Arroniz, I. 2006. The 12 Different Ways for Companies to Innovate. *Spring* 47(3). [Online]. Retrieved April 16, 2016: https://www.researchgate.net/publication/3228477_The_Twelve_Different_Ways_for_Companies_to_Innovate

Schumpeter, J. (1934). *The theory of economic development*. Cambridge: Harvard University Press.

Schweser, K. (2015). *SchweserNotes™ for the CFA Exam: Corporate Finance, Portfolio Management and Equity Investments*. Fort Lauderdale: Kaplan Inc.

Scopus. (2017). *Scopus – Analyze Results*. [Online]. Retrieved November 8, 2017: https://www.scopus.com/search/form.uri?display=basic

Seagle, E.D. & Iverson, M. (2001). *Characteristics of the turfgrass industry in 2020: a Delphi study with implications for agricultural education programs*. Unpublished doctoral dissertation, University of Georgie.

Sekaran, U. & Bougie, R. (2016). *Research methods for business: A skill building approach*. Chichester: John Wiley & Sons.

Sgier, L. (2012). *Qualitative data analysis* [Online]. Retrieved July 18, 2017: http://www.ascn.ch/en/capacity_building/Past-workshops/Qualitative-Data-Analysis0/mainColumnParagraphs/02/download_website.pdf

Shafera, S., Smith, H., & Linder, J. 2005. The power of business models. *Business Horizons*, 48(3). [Online]. Retrieved May 18, 2016: http://www.sciencedirect.com/science/article/pii/S0007681304001132

Shah, H. A., & Kalaian, S. A. (2009). Which Is the Best Parametric Statistical Method For Analyzing Delphi Data? *Journal of Modern Applied Statistical Methods*, 8(1). [Online]. Retrieved June 2, 2017: http://digitalcommons.wayne.edu/jmasm/vol8/iss1/20/

Shane, S. (2000). Prior knowledge and discovery of entrepreneurial opportunities. *Organization Science*, 11(4). [Online]. Retrieved May 4, 2016: http://pubsonline.informs.org/doi/abs/10.1287/orsc.11.4.448.14602

Shane, S. (2003). *A general theory of entrepreneurship – the individual opportunity nexus.* Cheltenham: Edward Elgar Publishing.

Shields, T.J., Silcock, G.W.H., Donegan, H.A., & Bell, Y.A. (1987). Methodological problems associated with the use of the Delphi technique. *Fire Technology*, 23(3). [Online]. Retrieved June 18, 2017: http://pareonline.net/pdf/v12n10.pdf

Silverstein, D., Samuel, P., & DeCarlo, N. (2012). *The Innovator's Toolkit: 50+ Techniques for Predictable and Sustainable Organic Growth.* Hoboken: John Wiley & Sons.

Simmons, A. (2009). Animals, predators, the right to life, and the duty to save lives. *Ethics & the environment*, 14(1). [Online]. Retrieved March 16, 2016: https://muse.jhu.edu/article/265104/summary

Singh, R. 1998. *Entrepreneurial opportunity recognition through social networks*. Unpublished doctoral dissertation, University of Illinois.

Skulmolski, G., Hartman, F., & Krahn, J. (2007). The Delphi Method for Graduate Research. *Journal of Information Technology Education* 6(1). [Online]. Retrieved April 6, 2016: http://wiki.cbrnecc.ca/images/e/ef/JITEv6p001-021Skulmoski212_Delphi.pdf

Smith, J.B. and Colgate, M. (2007). Customer value creation: a practical framework. *Journal of marketing Theory and Practice*, 15(1). [Online]. Retrieved August 1, 2017: www.tandfonline.com/doi/abs/10.2753/MTP1069-6679150101

Smith, R., Butler, B., & Lebold, W. (1983). *Engineering as a Career*. New York: McGraw-Hill.

Solomon, A.O. (2011). *Becoming A Winner In Life: Solution To Your Situations*. Bloomington: AuthorHouse.

Stabell, C. B. & Fjeldstad, Ø. D. (1998). Configuring value for competitive advantage: on chains, shops, and networks. *Strategic management journal*, 19(5). [Online]. Retrieved October 25, 2017: http://onlinelibrary.wiley.com/doi/10.1002/(SICI)1097-0266(199805)19:5%3C413::AID-SMJ946%3E3.0.CO;2-C/abstract?userIsAuthenticated=false&deniedAccessCustomisedMessage=

Stampfl, G. (2015). *The process of business model innovation: an empirical exploration*. Berlin: Springer Gabler.

Stevens, R. (2012). *Market Opportunity Analysis: Text and Cases*. New York: Routledge.

Storbaka, E. (2010). *Barriers to Business Model Innovation - A comparative case study of the Finnish paper and telecom industries*. Unpublished master's thesis, Aalto University.

Teece, D. (2010). Business Models, Business Strategy and Innovation. *Long Range Planning*, 43(2). [Online]. Retrieved March 28, 2016: http://www.businessmodelcommunity.com/fs/Root/8jig8-businessmodelsbusinessstrategy.pdf

Thangaratinam, S. & Redman, C.W. (2005). The delphi technique. *The obstetrician & gynaecologist*, 7(2). [Online]. Retrieved May 24, 2017: https://www.ncbi.nlm.nih.gov/pubmed/17877682

The Goals. (2017). [Online]. Retrieved November 2, 2017: http://www.globalgoals.org/

Thiétart, R.-A., Royer, I. and Zalowski, P. (2001) *Doing Management Research*. California: SAGE Publications Ltd.

Thomke, S. (2003). *Experimentation matters*. Boston: Harvard Business School Publishing Corporation.

Tidd, J., Bessant, J., & Pavitt, K. (2005). *Managing innovation integrating technological, market and organizational change*. San Francisco: John Wiley and Sons Ltd.

Tjalve, K. 2014. *To what extent does innovation induce a change in a business model?* [Online]. Retrieved February 23, 2017: https://www.quora.com/To-what-extent-does-innovation-induce-a-change-in-a-business-model

Trochim, W. M. (2006). *Qualitative measures* [Online]. Retrieved March 25, 2017: https://pdfs.semanticscholar.org/ca82/06e94c0beb7d63e10d04131966233f3d2a70.pdf

Trott, P. (2008). *Innovation Management and New Product Development*. Harlow: Pearson Education Limited.

Tushman, M. L., Virany, B., & Romanelli, E. (1985). Executive succession, strategic reorientations, and organization evolution: The minicomputer industry as a case in point. *Technology in Society*, 7(2-3). [Online]. Retrieved October 13, 2017: http://www.sciencedirect.com/science/article/pii/0160791X85900314

Ulwick, A.W. (2005). *What customers want: Using outcome-driven innovation to create breakthrough products and services*. Sydney: McGraw-Hill Companies.

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences*, 15(3). [Online]. Retrieved July 25, 2017: http://onlinelibrary.wiley.com/doi/10.1111/nhs.12048/abstract

Welman, J.C. & Kruger, F. (2001). *Research methodology for the business and administrative sciences*. Oxford: Oxford University Press.

West, J.F. & Cannon, G.S. (1988). Essential collaborative consultation competencies for regular and special educators. *Journal of Learning Disabilities*, 21(1). [Online]. Retrieved June 25, 2017: http://journals.sagepub.com/doi/abs/10.1177/002221948802100111

Wright, K. B. (2005). Researching Internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of Computer-Mediated Communication*, 10(3). [Online]. Retrieved April 30, 2017: http://onlinelibrary.wiley.com/doi/10.1111/j.1083-6101.2005.tb00259.x/full

Yang, Y.N., (2003). Testing the Stability of Experts' Opinions between Successive Rounds of Delphi Studies. *Annual Meeting of the American Educational Research Association* (pp. 21-25). Chicago: Chicago State University.

Yu, H. & Hang, C. (2010). A Reflective Review of Disruptive Innovation Theory. *International Journal of Management Reviews*, 12(4). [Online]. Retrieved April 11, 2016: http://onlinelibrary.wiley.com/doi/10.1111/j.1468-2370.2009.00272.x/abstract

Zohrabi, M. (2013). Mixed method research: Instruments, validity, reliability and reporting findings. *Theory and Practice in Language Studies*, 3(2). [Online]. Retrieved June 15, 2017: https://www.researchgate.net/publication/270040195_Mixed_Method_Research_Instruments_Validity_Reliability_and_Reporting_Findings

Zott, C. & Amit, R. (2008). The fit between product market strategy and business model: implications for firm performance. *Strategic management journal*, 29(1). [Online]. Retrieved September 27, 2017: http://onlinelibrary.wiley.com/doi/10.1002/smj.642/abstract

Zott, C., Amit, R., & Lorenzo, M. (2010). The business model: theoretical roots, recent developments, and future research. *IESE Business School* (pp. 1-43). Pamplona: University of Navarra.

Appendix A

Appendix A contains the research study's main research question, main objective, sub research questions, sub research objectives and the respective research methodology to be used.

Table A1: Research questions and objectives

Main Research Questions	Main Objective	Sub Research Questions	Sub Research Objectives	Research Methodology
How would an illustrative, comprehensive and detailed BMI framework - which contains appropriate processes, tools and building-block design guidelines – capable of systematically identifying a white space opportunity and developing an innovative business model be developed?	Develop an illustrative, comprehensive and detailed BMI framework - which contains appropriate processes, tools and building-block design guidelines – capable of systematically identifying a white space opportunity and developing an innovative business model.	What are the current business model definitions, frameworks and components?	Identify current business model definitions, frameworks and components.	Literature
		What are the current BMI definitions, frameworks, stages and activities?	Identify current BMI definitions, frameworks, stages and activities.	Literature
		What are the limitations of current of BMI frameworks?	Identify the limitations of current BMI frameworks.	Literature
		What does the transformation process entail to change from a current business model to a new innovative business model, and does it differ when pursuing a white space opportunity?	Identify the transformation process of how to change from a current business model to a new innovative business model, and how it differs when pursuing a white space opportunity.	Literature
		What is a white space opportunity?	Define a white space opportunity.	Literature
		What are the key design guidelines to be considered when developing the various building blocks of a business model?	Identify key design guidelines to be considered when developing the various building blocks of a business model.	Literature and Delphi Approach
		Which relevant methods and tools are available to support the business model development process?	Identify the relevant methods and tools necessary to assist the business model development process.	Literature
		How would a framework capable of systematically identifying a white space opportunity and developing an innovative business model be developed?	Develop a framework capable of systematically identifying a white space opportunity and developing an innovative business model.	Literature
		How can it be assured that the designed white space BMI framework is valid?	Validate the white space BMI framework.	Literature and a one round validation with experts

Appendix B

Appendix B illustrates the research study's research methodology process.

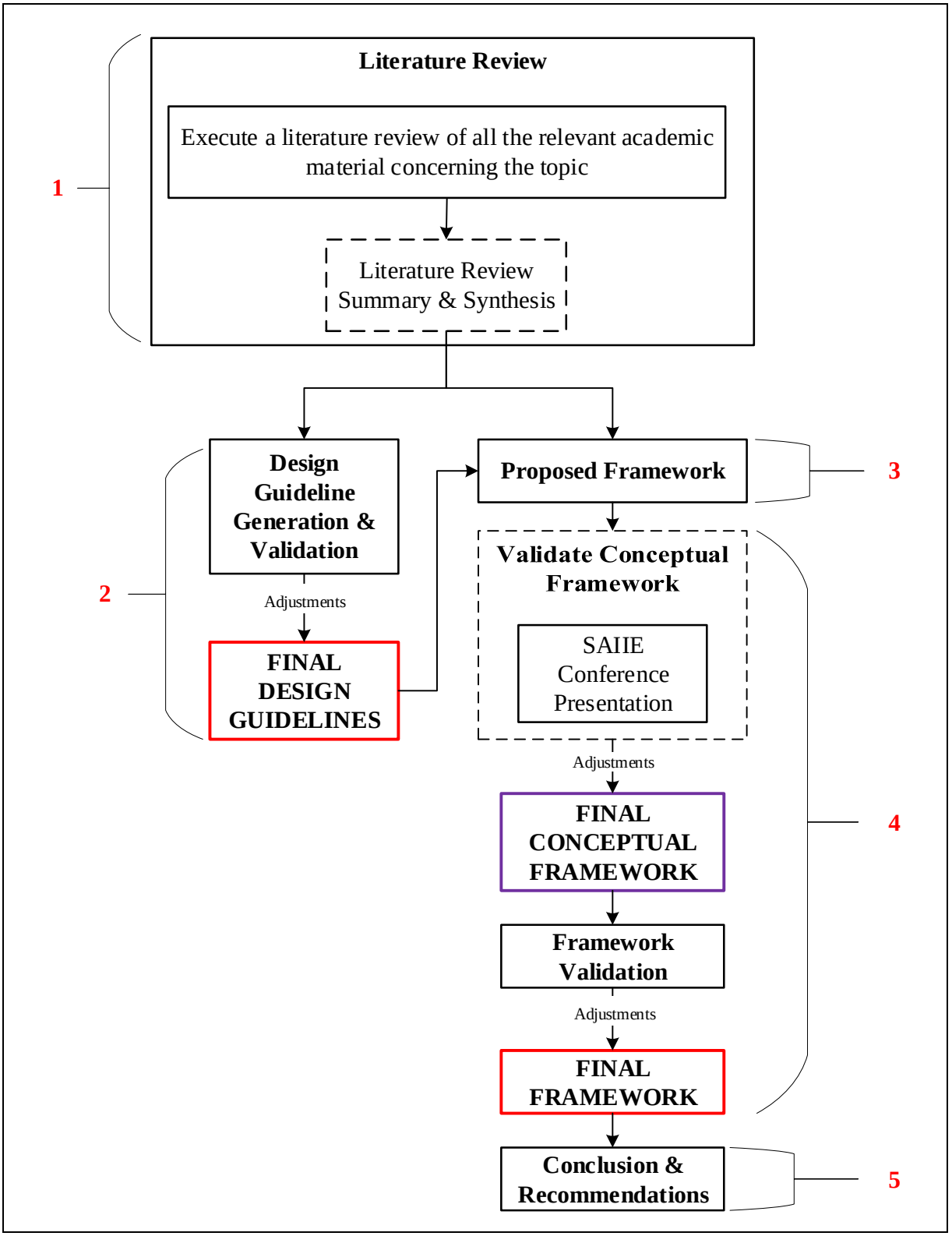


Figure B1: The strategy of the research project

Appendix C

Appendix C illustrates the Business Model Canvas.

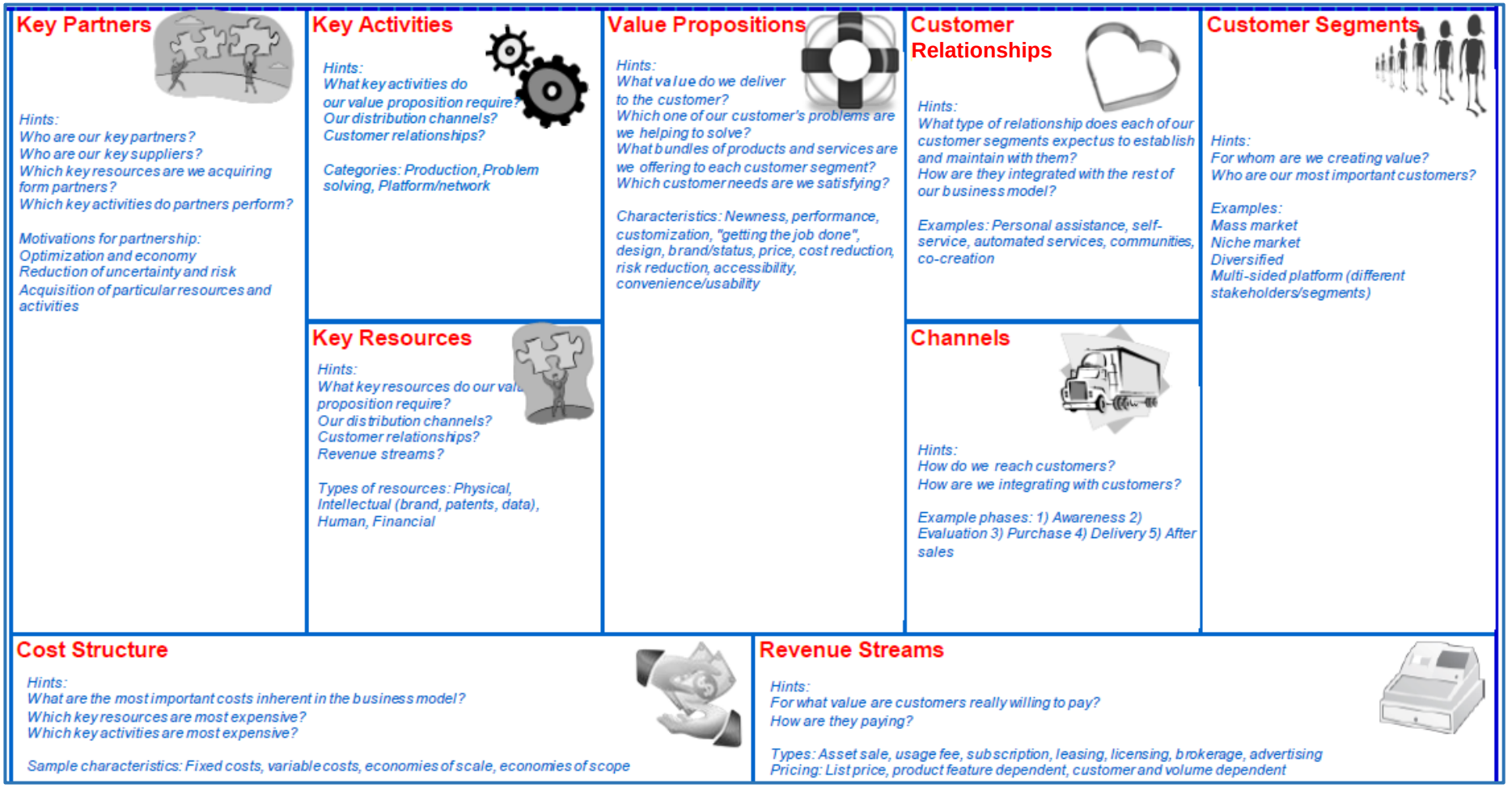


Figure C1: Business Model Canvas

Appendix D

Appendix D illustrates and explains the tools found within Osterwalder and Pigneur as well as Geterud and Tegern's BMI processes.

D.1 Osterwalder & Pigneur's (2010) BMI Tools

Table D1: Cross-sectional analysis of the tools found within each BMI phase.

Tools	Mobilise	Understand	Design	Implement	Manage
Business Model Canvas	X	X	X	X	X
Storytelling	X			X	
Business Model Patterns		X	X		
Customer Insight		X			
Visual Thinking		X	X	X	X
Scenarios		X	X		X
Business Model Environment		X			X
Evaluating Business Models		X	X		X
Blue Ocean Strategy			X		
Managing Multiple Business Models			X	X	
Ideation			X		
Prototyping			X		

(Source: Osterwalder & Pigneur, 2010)

Table D2: Tool descriptions

Tools	Description
Business Model Canvas	As was seen in Appendix C, the Business Model Canvas provides a concept where organisations can think and describe their or any firm. It acts an outline for strategy to be employed within firm structures, processes and systems.
Storytelling	Storytelling involves telling a story to managers, potential investors and employees. It results in a business model concept being more tangible and familiar and can be used for introduction, clarification and engagement purposes.
Business Model Patterns	5 common business model patterns, with similar characteristics, arrangements and behaviours, are used to assist in the understanding of a business model's dynamics and act as a potential source of ideas and inspiration.
Customer Insight	This customer focused tool consists of an Empathy Map containing core customer focused questions. Osterwalder & Pigneur (2010) stress the use of this tool due to its all-encompassing design potential and because companies often neglect a customer's perspective when doing market research.
Visual Thinking	The use of sticky notes, illustrations and drawings are used in order to improve communication, explore ideas and improve understanding.
Scenarios	Scenarios are generated to serve as an input to the business model development process by rendering the business model design more precise, comprehensive and tangible. Customer settings and future environments are generated.
Business Model Environment	A very comprehensive and in-depth external environmental analysis tool involving various aspects, each containing numerous questions, regarding industry forces, key trends, market forces and macro-economic forces.
Evaluating Business Models	Contains a detailed building block SWOT analysis of the Business Model Canvas.
Blue Ocean Strategy	Utilises the Blue Ocean Strategy's four action framework (Eliminate, Reduce, Create, Raise) on the Business Model Canvas to achieve value innovation.
Managing Multiple Business Models	Less of a tool and more of a discussion, three examples are provided where the issue of separation and integration of multiple business models are addressed.
Ideation	This involves considering four epicenters of BMI, namely resource-driven, offer-driven, customer-driven and finance-driven innovations. Additionally "what if" questions are asked in order to challenge traditional conventions and spark ideas.
Prototyping	A business model prototype is generated to investigate various aspects and ideas of the business model itself. The process involves the generation of: 1) A simple business model sketch, 2) Detailed canvas, 3) Financial business case and 4) Field tests.

D.2 Geterud and Tegern's (2012) Tool Descriptions

D.2.1 Business Background Stage

1. Goal and scope: This is required to establish expectations and bring into line the correct project team. Additionally, it assists in starting the project and distributing the word throughout the organisation.
2. Product characteristics: It is important that the characteristics of the product is stated to every team member. This assists the team in understanding what kind of innovation is required, the product potential and possibilities, as well as where the product is technically positioned. Geterud & Tegern (2012) held innovation workshops with SKF to generate various innovation concepts.
3. Overview of applications: Knowing the applications of the product assists in the understanding of which areas the product is applied, understanding the product itself better and aligning the product's purposes with the project team.
4. Competitive environment: Other competitors within the industry serves as an excellent source for a standard as well as differentiated idea generation. Areas of focus include target segments, pricing strategy, distribution channels and spotted best practices. Geterud & Tegern (2012) state that the business models of competitors must be sketched from an early stage to deliver a more effective customer interview.
5. Customer insight: This is the most important business background phase. The gained customer insights set the base for choice, innovation as well the business model to be reinvented. Special attention is given to the JTBD method. This results in a stronger establishment of true customer value within the project team which is also essential for change management. Additionally, customer visits, interviews and studies assist in recognising the unspoken needs.
6. Trends and drivers: Understanding what the industry trends and drivers are helps to decide which kind of innovation could be of use. This is done by studying market literature. Three categories were identified to assist in the trend and driver identification process: human, technical and market.

D.2.2 Innovating the Business Model Stage

1. Current business model: Geterud & Tegern (2012) used Osterwalder and Pigneur's (2010) Business Model Canvas to allow SKF to gain a better understanding of their current business. After defining the current, or 'as is', business model, they set out to discuss and develop ideas of the future innovative, or 'to be', business model in terms of the nine building blocks. By following this process in the form of workshops, extra innovation concepts were generated with an increased quality of results.

2. Value proposition canvas: Geterud & Tegern (2012) used their own type of value proposition canvas that sketches a company's current value proposition versus other competitors in the same market. This was done to create ideas on how the company can be different by changing performance on present categories to create a more striking value proposition.

3. Six paths: The six paths are a type of framework that originates from the Blue Ocean Strategy. It encourages differentiated thinking about normal procedures and assemblies by viewing a company and its market barriers through six different dimensions. Geterud and Tegern created a group discussion environment through which innovation concepts, terms of competition and 'blue oceans' were created.

4. Opportunity assessment: The nine business model building blocks were used to discover innovative opportunities and threats, which resulted in the most ideas being generated within this phase. This fourth component benefited from the previous first component – current business model innovation.

5. Buyer utility map: An adjusted Blue Ocean Strategy tool was used, the buyer utility map, which is a two-dimensional matrix which combines the cycle of a buyer's experience with that of the customer value to discover innovative ideas and concepts that are not initially explicit. Geterud & Tegern (2012) realised that the original buyer utility map did not create any innovations and was therefore adjusted with questions to combat this.

6. Innovation concept assessment: Innovation ideas and concepts were defined as "something new and possibly attractive in comparison to the current business model" (Geterud & Tegern, 2012). All the innovative ideas and concepts were gathered and then grouped into the following seven life cycle phases - 1) Awareness & assessment, 2) Specification, selection & purchase, 3) Delivery & installation, 4) Use, 5) Supplements, 6) Maintenance & repair and 7) Disposal. To generate an innovative and complete business model concept, Geterud & Tegern (2012) stated that they "assessed each phase in the life-cycle and grouped ideas that could be used in separate business models".

D.2.3 Concept Assessment Stage

1. Tagline – story: The goal of the tagline story is to generate a story around the business model concept by emphasising four different categories:
    a. Customer insight: A description of the customer needs in their segments that motivate the new business model.
    b. What if… ?: How the scenario could be if it is based on the new business model.
    c. Positioning: A description of the market location to where the new business model will result in.
    d. How it is done: A summary of the most vital stages and factors to obtain the new reinvented business model.
2. Value proposition canvas: An illustration of the crucial differences between the old and new business models and new classes of competition with regards to their value propositions within a canvas.
3. Business model framework: Identifying and examining the features that are required within every business model building block by Osterwalder & Pigneur (2010).
4. GAP-analysis: Assessment of the gaps present within each of the nine building blocks between the old and the new business model. The actions that are required as well as the timeframe is also considered.
5. Business impact and uncertainty: The possible profits and doubt surrounding the new business model concept is understood by assessing the following four categories:
    a. Profitability: An examination of the revenue and costs associated with the new business model is executed.
    b. Uncertainty and risks: Revealing the vital threats and doubts associated with the new business model.
    c. Sustainable advantage: An investigation into the replication potential of the new business model by other competitors.
    d. Future state: Where does the company go in terms of the product, market segments and client segments?
    e. Final concept assessment: The new innovative business models are assessed and evaluated after which one is chosen. Additionally, effective ideas are generated from other concepts.
6. Final concept assessment: The business model concepts are evaluated through simple questions in terms of their implementation, organisational fit, strategic fit, time frame, profitability and sustainable advantage.

D.2.4 Reinvented Business Model Stage

1. Customer segments: The customer segments were included as a component to establish a good understanding of which customer segments are affected by the new business model's value proposition. This was required to differentiate the various market segment needs, allocate a size of a market to each and arrange actions to each market segment which is thought to have the greatest impact.

2. Value offer in life cycle: An examination of the value offer is done to identify where it does and does not add value over each life cycle phase. The customer insights are considered in every phase and is what the value examination is based on.

3. Competitors' value offer: A specific position of the new business model is generated by examining the new value offer against the value offer of other competitors. Each value offer's performance against their competitors was finally illustrated on a strategy radar.

4. Positioning: A specific position is found by picking existing generated values or where excellent performance was created by the strategy radar. The positioning should be run parallel to the strategy of the company.

5. GAP analysis: The company projects are identified that must attain the 'to-be' state needed for the obligatory positioning. Each of these projects are allocated an urgency and importance rating to generate the implementation plan.

6. Business case: A financial assessment is made of the new reinvented business model and its suggested projects to decide whether it is financially feasible to accept the business model or not. Geterud & Tegern (2012) state that, "Regardless of the nature of projects, their NPV must be assessed by looking at the PV of investments needed and the PV of future sales giving a NPV. The reinvented business model should be compared to the current and a NPV for the reinvented business model should be created and sensitivity of all inputs made".

7. Risk assessment: A risk assessment is required to comprehend the risks that are related to the new business model and projects. Risks are examined from a customer, company and competitor viewpoint, after which they are plotted on an Impact vs Probability graph.

8. Implementation plan: A viable implementation plan, with regards to time and cost, is constructed from the GAP analysis and business cases phases.

Appendix E

Appendix E provides a summary of prominent BMI and Innovation frameworks discussed in the literature review.

E.1 BMI Framework Summary

Table E1: Stage Descriptions of Osterwalder & Pigneur's (2010) Five Stage BMI Process

BMI Stage	Description
1. Mobilisation	Sets the base and prepares for a successful BMI; States the BMI project objectives, plans the BMI project, gathers a cross-functional team; Obtains executive approval.
2. Understand	Investigates and assesses elements that are required for the business model design process; Understanding is gained of the customers, technological developments and business models of industry competitors and look past present market and customer boundaries.
3. Design	Transforms the information from the Understanding stage into business model prototypes which can be assessed and selected.
4. Implement	Implement the designed and selected business model into the market environment.
5. Manage	Adjust and refine the business model accordingly to the reacting market by scanning the external environment and constantly assessing the business model.

Table E2: Stage Descriptions of Lindgardt & Reeves's (2011) Circular BMI Process

BMI Stage	Description
1. Uncover opportunities	Discovers business opportunities by understanding the limitations of the company's current business model, forcing successful business model patterns into industries, identifying undeserved customer needs and re-establishing market boundaries.
2. Convert into business models	Translates the discovered opportunities into appropriate business models; Suitable and rigorous evaluation criteria is used to assist the selection of the correct business model.
3. Prepare and test	Prioritises and prepares for broader implementation; Tests business model within its environment.
4. Scale and iterate	The chosen business model(s) are enlarged in scale and iterated for refinement purposes.
5. Manage the business model portfolio	Concentrates on handling the business model portfolio successfully. Feeds back into stage one.

Table E3: Stage Descriptions of Geterud & Tegern's (2012) BMI Tool Framework

BMI Stage	Description
1. Business background	Obtains information on the current/parent business model. This stage obtains a better understanding on the goal, scope, product characteristics, product applications, competitive environment, customer insight and current trends and drivers.
2. Innovating the business model	Generates and assesses innovative business model concepts/ideas by assessing the current/parent company in terms of its business model, value proposition performance and possible opportunities/ideas.
3. Business model concept	Broadens and assesses the generated business model concepts in terms of their returns, implementation barriers and commercialisation viability so that a suitable final solution can be chosen.
4. Reinvented business model	Bridges the gap between having the new business model as a project and implementing the model itself; Assesses the newly innovated business model.

Table E4: Stage Descriptions of Johnson's (2010b) Repeatable BMI Process

BMI Stage	Description
1. Identify customers JTBD	Identify opportunities by identifying a customer's real JTBD by asking is "*what functional, emotional or social job is the customer trying to get done*?*"* instead of "*what does the customer need*?"
2. Design the CVP	Establish the offering, the offering's access and its payment scheme; Ensure the offering addresses the JTBD.
3. Devise the Profit Formula	Establish reasonable assumptions; Generate income statement and define revenue model, cost structure, target unit margin and resource velocity.
4. Identify Key Resources and Key Processes	Identify Key Resources and Key Processes from assumed income statement; Compare current business model blueprint to current/parent company.
5. Implementation	Test, learn, iterate and refine business model blueprint; Establish rules, norms and metrics; Scale-up.

Table E5: Stage Descriptions of the 4I BMI Framework by Frankenberger *et al*. (2013)

Phase	BMI Stage	Description
Design	1. Initiation	Identifies opportunities by understanding external environment such as customers, competitors and other firm influences.
	2. Ideation	Converts the identified opportunities into concrete business model ideas.
	3. Integration	Develops the business model ideas into complete and viable business models.
Realisation	4. Implementation	Implement the business model by taking risks, making substantial investments and testing the concept.

E.2 Innovation Framework Summary

Table E6: Stage Descriptions of the Generic Innovation Process by Tidd *et al*. (2005)

Stage	Description
1. Search	Identifies successfully new opportunities/ideas which can lead to potential innovations in the form of a good, service, process or business concept resulting in an increased competitive advantage.
2. Select	Precisely screens and selects innovative solutions.
3. Implement	Develops the chosen solutions into exploitable goods to execute, launch and sustain it in the external environment.
Learn	Situated externally, it receives input from each of the other three linear stages and gives an output back to the Search Stage.

Table E7: Stage Descriptions of Du Preez & Louw's (2008) Fugle Model

Phase	Stages Name	Description
Phase 1	Opportunity Identification and Understanding Stage	Generates, discovers and understands opportunities.
	Business Model Design Concept Stage	Converts opportunities into a business model concept through an initial design process.
	Feasibility Stage	Tests the viability of the business model concept through a prototyping feasibility assessment.
-	Portfolio Stage	Manages the solution received from phase 3 and launches it once the time is correct to deploy it.
Phase 2	Deployment Stage	Detailed design and implementation of the newly designed business model.
	Refinement Stage	The business model is operated within the market opportunity and accordingly refined.
	Exploitation Stage	Final business model is exploited in terms of capturing new opportunities and generating new business models to obtain more value.

Table E8: Phase Descriptions of the Innovation Value Chain

Phase	Description
1. Idea Generation	Identify ideas by analysing the internal and external business environment. This includes obtaining insight from the industry, customers, competitors, scientists, investors and universities.
2. Idea Conversion	Identified ideas are assessed, funded and generated into goods, services or processes.
3. Idea Diffusion	The generated solution is diffused into chosen distribution channels, customers and geographic locations.

(Source: Hansen & Birkinshaw, 2007)

Table E9: Ten Types of Innovation Framework Description

Category	**Innovation Type**	**Description**
Configuration	Profit Model	How the business generates money
	Network	Generating value with others through networks
	Structure	Asset and talent alignment
	Process	Methods to execute the required work
Offering	Product Performance	Unique features and functionality
	Product System	Complementary goods and services
Experience	Service	Surrounding offering support and enhancements
	Channel	Defines how the offering will be delivered
	Brand	Business and offering representations
	Customer Engagement	Customer interactions the business fosters

(Source: Keeley *et al*., 2013)

Appendix F

Appendix F provides the first initial set of design guidelines, their originating sections and their explanation/purpose for inclusion.

Table F1: High-Level (HL) Guidelines

#	Design Guideline	Section	Author	Explanation/Purpose
$HL1_1$	Utilise the mobilise, identify, understand, design, assess, implement, test, scale, manage and adjust stages.	4.3.3	Lindgardt & Reeves (2011) Johnson (2010b) Osterwalder & Pigneur (2010)	This was taken from the synthesis of the literature review to verify whether the planned framework process stages are correct before commencing with the framework development.
$HL2_1$	Align the business's strategy with the design process in order to obtain a business model that will possess a sustainable competitive advantage.	2.2.3.1 3.1.1 3.1.3.1	Teece (2010) Casadesus-Masanell & Ricart (2011) Oliver (1997) Bharadwaj (1993)	Without a sustainable competitive advantage, a business is easily replicated, and it will not be able outperform its competitors at higher level within its industry. This is therefore important to consider.

Table F2: Customer Segment (CuSe) Guidelines

#	Design Guideline	Section	Author	Explanation/Purpose
$CuSe1_1$	Define who the business is creating value for.	Appendix C	Osterwalder & Pigneur (2010) Christensen *et al*. (2007)	Hillstrom (2017) states that the first step in the value creation process is to understand the sources and drivers of value creation, such as customers.
$CuSe2_1$	Group customers into distinct segments with common needs, common behaviours or other attributes.	2.2.3.1	Osterwalder & Pigneur (2010) Christensen *et al*. (2007) Romero & Molina (2015) Gupta & Chintagunta (1994)	This gives options as to how customers could be potentially segmented.

$CuSe3_1$	Group customers into separate segments with the following criteria: • Customer needs require and justify a distinct offer. • Customers must be reached through different distribution channels. • Customers require different types of relationships. • Customers have substantial different profitability's. • Customers are willing to pay for different aspects of the value offer	2.2.3.1	Osterwalder & Pigneur (2010)	This gives options as to how customers could be potentially segmented
$CuSe4_1$	Identify which customers will be served and which will not be served.	2.2.3.1	Osterwalder & Pigneur (2010)	It can be more viable and potentially more profitable to serve some customers over others.
$CuSe5_1$	Define who the most important customers are.	Appendix C	Osterwalder & Pigneur (2010)	Certain customers can bring substantially more relative value to a company than others.
$CuSe6_1$	Identify the customer's Job to be Done.	2.2.3.2 2.3.3.4 2.4.3 2.4.4	Christensen *et al*. (2007 Johnson (2010) Osterwalder & Pigneur (2010) Kagermann *et al*. (2008) Hwang & Christensen (2008)	This is centric to Johnson's Repeatable BMI process and therefore important to capture a white space opportunity.

Table F3: Value Proposition (VP) Guidelines

#	Design Guideline	Section	Author	Explanation/Purpose
$VP1_1$	Ensure the value proposition fulfils the identified customer's JTBD.	2.3.3.4	Osterwalder & Pigneur (2010) Kagermann *et al*. (2008) Johnson (2010) Christensen *et al*. (2007)	To be able to capture value, it must first be created by serving your customer base: Making sure the product/service fulfils the JTBD
$VP2_1$	Each Value Proposition should consist of a selected bundle of products and/or services that caters to the requirements of a specific Customer Segment.	2.2.3.1	Osterwalder & Pigneur (2010)	This is the core description of what a value proposition is by Osterwalder & Pigneur (2010).
$VP3_1$	Consider the barriers that limit customers from getting a job done: wealth, access, skill and time.	2.4.3.2	Kagermann *et al*. (2008)	According to Kagermann *et al*. (2008) "A customer value proposition can be constructed by identifying the barriers that limit customers from getting a job done." Since the JTBD technique is an important consideration, the barriers that limit it should also then be considered.

Table F4: Distribution Channel (DC) Guidelines

#	Design Guideline	Section	Author	Explanation/Purpose
$DC1_1$	Generate a backward income statement which will lead to the generation of good assumptions which can then be used to identify the Distribution Channels.	2.3.3.4	Johnson (2010) Kagermann *et al*. (2008) Silverstein *et al*. (2008) Ayers (2006)	Generated in line with Johnson's (2010b) Four Box Business Model and Repeatable BMI Process.
$DC2_1$	Establish how the value proposition will reach each customer segment.	2.2.3.1	Rosenbloom (2013)	The main function of a distribution channel is to convey the value proposition - this guideline sets the base for this.

Table F5: Customer Relationship (CR) Guidelines

#	Design Guideline	Section	Author	Explanation/Purpose
$CR1_1$	Define what type of relationship does each of the customer segments expect the business to establish and maintain with them.	Appendix C	Osterwalder & Pigneur (2010) Parvatiyar & Sheth (2001) Buttle (2009)	According to Brown & Cooper (1999) Customer Relationship Management (CRM) should be focused on more in order be able to compete effectively in the marketplace.
$CR2_1$	Quantify how costly the customer relationship will be.	2.2.3.1	Osterwalder & Pigneur (2010) Parvatiyar & Sheth (2001) Buttle (2009)	It might not be profitable to maintain a customer relationship if the cost is too high.
$CR3_1$	Establish how the customer relationships are integrated with the rest of the business model.	Appendix C	Osterwalder & Pigneur (2010)	Chen & Popvich (2003) state that CRM is an activity that encompasses an entire enterprise and business model.

Table F6: Cost Structure (CoSt) Guidelines

#	Design Guideline	Section	Author	Explanation/Purpose
$CoSt1_1$	Generate a backward income statement which will lead to the generation of good assumptions which can then be used to identify the Cost Structure.	2.3.3.4	Johnson (2010) Kagermann *et al*. (2008) Silverstein *et al*. (2008) Ayers (2006)	Generated in line with Johnson's (2010b) Four Box Business Model and Repeatable BMI Process descriptions.
$CoSt2_1$	Define what balance the business model will have between the two extremes of having: 1. A Cost-Driven (minimisation of costs) Cost Structure. 2. A Value-Driven (Value maximisation) Cost Structure.	2.2.3.1	Osterwalder & Pigneur (2010)	According to Rawes (2017), firms have two basic ways in which they can price their value propositions, either through a cost-based or value based pricing strategy.

Table F7: Revenue Stream (RS) Guidelines

#	Design Guideline	Section	Author	Explanation/Purpose
$RS1_1$	Generate a backward income statement which will lead to the generation of good assumptions which can then be used to identify the Revenue Streams.	2.3.3.4	Johnson (2010) Kagermann *et al*. (2008) Silverstein *et al*. (2008) Ayers (2006)	Generated in line with Johnson's (2010b) Four Box Business Model and Repeatable BMI Process descriptions.
$RS2_1$	Define what type or mix of revenue streams the business model will have, either: 1. Transactional revenues (one-time customer payments) 2. Recurring revenues (ongoing customer payments).	2.2.3.1	Osterwalder & Pigneur (2010)	According to Osterwalder & Pigneur (2010), two basic types of revenue streams exist, either transactional or recurring.

$RS3_1$	Define what the pricing mechanism each revenue stream will have, either: 1. Fixed Menu Pricing (predefined prices based on static variables) 2. Dynamic Pricing (Prices that change based on market conditions).	2.2.3.1	Osterwalder & Pigneur (2010) Mihailescu & Teo (2010)	Mihailescu & Teo (2010) and Osterwalder & Pigneur (2010) all state that revenue streams have two types of basic pricing mechanisms: Fixed Pricing or Dynamic Pricing.

Table F8: Key Activities (KA) Guidelines

#	**Design Guideline**	**Section**	**Author**	**Explanation/Purpose**
$KA1_1$	Generate a backward income statement which will lead to the generation of good assumptions which can then be used to identify the Key Activities.	2.3.3.4	Johnson (2010) Kagermann *et al*. (2008) Silverstein *et al*. (2008) Ayers (2006)	Generated in line with Johnson's (2010b) Four Box Business Model and Repeatable BMI Process descriptions.
$KA2_1$	Identify the key activities required for the value proposition, distribution channels, customer relationships and revenue streams and then categorise them into: 1. Primary Activities 2. Support Activities.	2.2.3.1	Lambert & Cooper (2000) Stabell & Fjeldstad (1980) Porter (2008) Osterwalder & Pigneur (2010)	Osterwalder & Pigneur's (2010) literature on Key activities was combined with the well-known 'Porter's Value Chain' in an attempt to generate a more comprehensive Key Activity guideline involving Primary and Secondary activities.

Table F9: Key Resource (KR) Guidelines

#	Design Guideline	Section	Author	Explanation/Purpose
$KR1_1$	Generate a backward income statement which will lead to the generation of good assumptions which can then be used to identify the Key Activities.	2.3.3.4	Johnson (2010) Kagermann *et al*. (2008) Silverstein *et al*. (2008) Ayers (2006)	Generated in line with Johnson's (2010b) Four Box Business Model and Repeatable BMI Process descriptions.
$KR2_1$	Identify the required key resources for the value proposition, distribution channels, customer relationships and revenue streams and then categorise them into the following categories: • Physical (Manufacturing facilities, buildings, vehicles, equipment and machines, systems, distribution networks, technology, products) • Intellectual (Trademarks, information, patents, copyrights, branding, alliances and partnerships) • Human • Financial (Cash, credit channels, staff stock option pool, funding)	2.2.3.1 2.2.3.2	Osterwalder & Pigneur (2010) Johnson (2010b)	This design guideline was generated by summarising all the information under the Key Resource heading within Section 2.2.3.1. The physical, intellectual and financial examples in brackets were made more comprehensive by analysing Johnson's Four Box Business Model in Section 2.2.3.2.

Table F10: Key Partners (KP) Guidelines

#	Design Guideline	Section	Author	Explanation/Purpose
$KP1_1$	Generate a backward income statement which will lead to the generation of good assumptions which can then be used to identify the Key Activities.	2.3.3.4	Johnson (2010) Kagermann *et al*. (2008) Silverstein *et al*. (2008) Ayers (2006)	Generated in line with Johnson's (2010b) Four Box Business Model and Repeatable BMI Process descriptions.
$KP2_1$	Consider the following four types of partnerships to aid in the design process: 1. Strategic alliances between non-competitors. 2. Coopetition: Strategic partnerships between competitors. 3. Joint ventures to develop new businesses. 4. Buyer-supplier relationships to assure reliable supplies.	2.2.3.1	Osterwalder & Pigneur (2010)	This design guideline was generated by summarising all the information within Section 2.1.3.8.

Appendix G

Skulmoski *et al.* (2007) provide and briefly describe the following components that must be considered to execute a successful Delphi method: methodology, initial questioning, expertise criteria, participation numbers and finally number of rounds. These components are explained in Table G1 below.

Table G1: Explanation of required Delphi components

Delphi Components	**Explanation**
Delphi Methodology	The Delphi approach is typically utilised for quantitative research, however qualitative research can also be analysed. Therefore, the Delphi method possesses the ability to answer a wide range of research questions and be a structured yet flexible process that utilises quantitative, qualitative or a mixture or both methods (Skulmoski *et al*., 2007).
Initial Questioning	The initial few questions should set be asked in a broad and general manner to set the research tone for the questionnaire. The questions could also become more and more specific leading the participant to a certain area of focus.
Expertise Criteria	The initial few questions should set be asked in a broad and general manner to set the research tone for the questionnaire. The questions could also become more and more specific leading the participant to a certain area of focus.
Participation Numbers	Delbecq *et al.* (1975) suggests that the minimum number of participants should be used and that validation itself should rather depend on the follow-up rounds. Skulmoski *et al.* (2007) state that no physically binding rules exist when it comes the number of participants, however whether the group is heterogeneous or homogenous must be considered. If the participation group is homogenous, a smaller sample of ten to fifteen participants are sufficient (Skulmoski *et al.*, 2007; Ludwig, 1997; Delbecq *et al.*, 1975). On the other hand, a dissimilar heterogeneous group will require a few hundred participants.
Number of rounds	Similar to the number of participants, the number of rounds are also variable. For most studies, two or three rounds are sufficient (Delbecq, Van de Ven & Gustafson, 1975), but a minimum of two rounds are required (Thangaratinam, & Redman, 2005). For homogenous participants less than three rounds are usually required to reach consensus, while for heterogeneous participants three rounds are normally required.
Feedback	Thangaratinam, & Redman (2005) state that an important feature of Delphi surveys is to give feedback to the participants after each round. According to Hsu and Sandford (2007), the feedback must consist of a summation of the general and prominent comments made by the group of participants as well as stating the position of the individual participant receiving the feedback relative to the group. They go on to describe that the feedback iterations allow participants to develop additional insights as well as reassess and reflect on their answers from the previous round.

Appendix H

Appendix H provides information surrounding the first design guideline survey. Sections H.1 to H.4 contain the invitation email, written consent form, explanatory email and summary document respectively.

H.1 Delphi Round 1 Invitation Email

Dear potential participant.

I am currently a student at Stellenbosch University.

Would you please be willing to partake in a validation survey involving the investigation of design guidelines for each component that makes up a business model? If so, please find the written consent form attached which you will need to read through, fill in and email back to me.

More specifically, the design guidelines cater for the following business model categories: High-Level, Customer Segments, Value Proposition, Customer Relationships, Distribution Channels, Key Resources, Key Activities, Key Partners, Cost Structure and Revenue Streams

The main research domains are: business models, business model innovation and business model design and reconfiguration.

I am coming to the point in my thesis where I need to recruit participants with backgrounds and expertise in these research fields to validate my framework.

The validation process will include a short document summarizing the theory, followed by an online survey which will take approximately 20 minutes. You will have two weeks to complete in - in your own time.

Would you please be willing to participate in this validation process?

If there is any way that I can make their voluntary participation more convenient or easier in any way I will happily do so.

Kind Regards.
Wouter Kühn.

CFA - Passed Level 1
B.Eng. - Mechanical Engineering
M.Eng. - Engineering Management - Business Model Innovation [Student]

INDUSTRIAL ENGINEERING
STELLENBOSCH UNIVERSITY

H.2 Written Consent Form

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

STELLENBOSCH UNIVERSITY

WRITTEN CONSENT TO PARTICIPATE IN A RESEARCH SURVEY

TITLE OF RESEARCH PROJECT:	A Business Model Innovation Framework for Capturing White Space Opportunities
REFERENCE NUMBER:	SU-HSD-004284
PRINCIPAL INVESTIGATOR:	Wouter Kuhn
ADDRESS:	Industrial Engineering Department, Stellenbosch University, Private Bag X1 Matieland, 7602, South Africa.
CONTACT NUMBER:	(+27) 768339235
E-MAIL:	17171830@sun.ac.za

Dear participant

Kindly note that I am currently a Master's engineering student at the Department of Industrial Engineering at Stellenbosch University, and I would like to invite you to participate in a research project entitled: A BMI Framework for Capturing White Space Opportunities.

Please take some time to read the information presented here which will explain the details of this project. Please contact me if you require further explanation or clarification of any aspect of the study. This study has been approved by the Research Ethics Committee (REC) at Stellenbosch University and will be conducted according to accepted and applicable national and international ethical guidelines and principles.

1. **INTRODUCTION:**

Numerous business model innovation models or frameworks have been designed and developed. Most of these however are on a very broad and general level, only illustrating the model and giving brief generic descriptions of the different model phases. The storage of these models within the theoretical realm makes it difficult to apply these models within the physical business world. This is especially true for arguably the most important phase within a business model innovation or design framework – the design phase. Most frameworks only discuss on a general level what should be looked at, what should be avoided and how a business model works, yet they fail to get to the critical point of what should actually be done and considered on a detailed level as to how to go about designing the actual business model.

2. **PURPOSE:**

   Business model design literature requires distinct generic design guidelines which will assist the user in a practical manner as to what should be done and considered in order to design a successful business model at a component or building block level. The purpose of this study is to investigate and validate design guidelines for ten different business model categories.

3. **PROCEDURES:**

   Participants will be firstly receiving via email the survey consent form. The participant will be required to read the consent form, sign it, scan it into the computer and then email it back to the investigator. Afterwards a summary of the literature surrounding the design guidelines will be emailed to the voluntary participant and how every component of the framework works. The participant will have the responsibility to read through the summary material, after which the survey document will be sent via email, which they will then be required to fill in and email back accordingly.

4. **TIME:**
   The time required to complete they survey will take 20 minutes.

5. **RISKS:**

   No risks can be foreseen for the researcher or participant by volunteering to agree to the survey. Mr Wouter Kuhn will accommodate any special requests to create a safer environment as required. The participant may withdraw from the study at any point in time if any part of the research circumstances does not conform to the participant. In the event of a related injury, the investigator should be contacted.

6. **BENEFITS:**

   No direct physical benefits will be received by the participant. However, the participants might gain new knowledge from the summary material and studying the framework itself. Additionally, they will add to the developmental research concerning business models and therefore the field of study will benefit from the participant's response.

7. **CONFIDENTIALITY, RECORDINGS AND DATA STORAGE:**

   Any type of personal information that concerns the participant in any way will be kept fully confidential. The information will not be disclosed in any way unless the consent of the participant is given. The mentioned information will be kept confidential in the following way:

   - The surveys will be kept in a Google Drive folder which is protected by a password. Each participant will have an identification number to keep their confidentiality. These numbers will be used and stored on Google Drive to add extra confidentiality for potential Google staff that could see the stored files. Finally, it is important to note that the actual Google Drive will be used, not the Stellenbosch University drive.
   - Only Mr Wouter Kuhn and Dr Louis Louw has access to the Google Drive folder. The laptops that are used by the researcher and supervisor are password protected. Additionally, the laptops are housed in offices that are locked by a key lock.
   - All participants will be assigned an identification number to guarantee their personal details remain anonymous within the thesis document itself.

If you have any questions or concerns about this research project, please feel free to contact Mr Wouter Kuhn at 0768339235 or 17171830@sun.ac.za. Additionally, the supervisor of the research, Dr Louis Louw, can be contacted at louisl@sun.ac.za

RIGHTS OF RESEARCH PARTICPANTS: You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché (mfouche@sun.ac.za / (+27)21 808 4622) at the Division for Research Development. You have the right to receive a copy of this Consent form.

If you are willing to participate in this research project, please sign the Declaration of Consent below and return the survey document to the investigator by email.

DECLARATION BY THE PARTICIPANT

As the participant I hereby declare that:

- I have read the above information and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is voluntary and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- If the principal investigator feels that it is in my best interest, or if I do not follow the study plan as agreed to, then I may be asked to leave the study before it has finished.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained to my satisfaction.

By signing below, I _____ (name of participant) agree to take part in this research study, as conducted by Mr Wouter Kuhn.

_____ _____

Signed at *(place)* **Date**

_____

Signature of Participant

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator** I hereby declare that the information contained in this document has been thoroughly explained to the participant. I also declare that the participant has been encouraged (and has been given ample time) to ask any questions. In addition, I would like to select the following option:

	The conversation with the participant was conducted in a language in which the participant is fluent.
	The conversation with the participant was conducted with the assistance of a translator, and this "Consent Form" is available to the participant in a language in which the participant is fluent.

_____ _____

Signed at *(place)* **Date**

_____

Signature of Principal Investigator

H.3 Explanatory Email

Dear Validation Participant.

You have agreed to complete a Business Model Design Guideline validation in the form of an online survey.

You can access the survey by clicking on the following link:
https://docs.google.com/forms/d/e/1FAIpQLSf7Ogh997vRwqTmaxZ8PR-pyjtXNh4tvIgs-4QkvKucs49OwA/viewform?usp=sf_link

A reminder will be sent to you shortly reminding about the completion deadline by the 1st of June 2017.

Important: Please find attached a document called "Research Summary Document". This document must be read through thoroughly before starting the validation process.

Thank you very much for taking time out of your busy schedules to partake in this validation process. Your time and effort is greatly appreciated.

Kind Regards.

Wouter Kühn.

CFA - Passed Level 1
B.Eng. - Mechanical Engineering
M.Eng. - Engineering Management - Business Model Innovation [Student]

e: 17171830@sun.ac.za
p: (+27) 768339235

INDUSTRIAL ENGINEERING
STELLENBOSCH UNIVERSITY

H.4 Delphi Round 1 Summary Document

Business Model Design Guideline Validation

Research Summary Document

by

Wouter J. Kühn

Department of Industrial Engineering, University of Stellenbosch,

Private Bag X1, Matieland 7602, South Africa.

Supervisor: Dr. L. Louw

1. Introduction

This document serves to give sufficient background knowledge to the participant in order to complete the validation questionnaire.

The validation questionnaire aims to validate and investigate further possible literature originating design guidelines for the building blocks found within a business model.

It is vitally important that the entire document is read through and fully understood by the participant. Any queries can be directed to Wouter Kühn at 17171830@sun.ac.za or (+27) 768339235. Only once you as the participant have fully understood this summary document with no related queries, may the validation questionnaire be completed.

This summary document describes the structure of the validation in Section 2, gives background as to what a business model is in Section 3 and finally includes an important glossary in Section 4.

2. Validation Structure

The validation questionnaire consists of the following 12 brief sections:

- Section 1: Introduction
- Section 2 : Personal Background
- Sections 3 - 12: Design Guideline Validation

An empty table template is shown below in Table 1 as an example of the filled in tables the participant will encounter in sections 3 – 12.

Table H1: Table template used within the questionnaire

#	**Design Guidelines**

The left column (#) gives each guideline a number for reference purposes. The questionnaire validates the Design Guidelines column in Table 1 and therefore this column should be the **core focus** of the participant.

3. Business Models

3.1 Business Model Definition:

A business can be defined as "a new unit for analysis, a system-level concept, centred on activities, and focusing on value", where a business model is:

- An original method of examination among firms and system levels.
- An all-inclusive and complete view on how enterprises do business.
- Emphasis on activities.
- Recognition that value generation is vitally important.

3.2 Business Model Canvas:

Osterwalder & Pigneur (2010) generated a business model that consists of nine building blocks that are illustrated in Figure 1 below. Each building block is briefly explained on the following page.

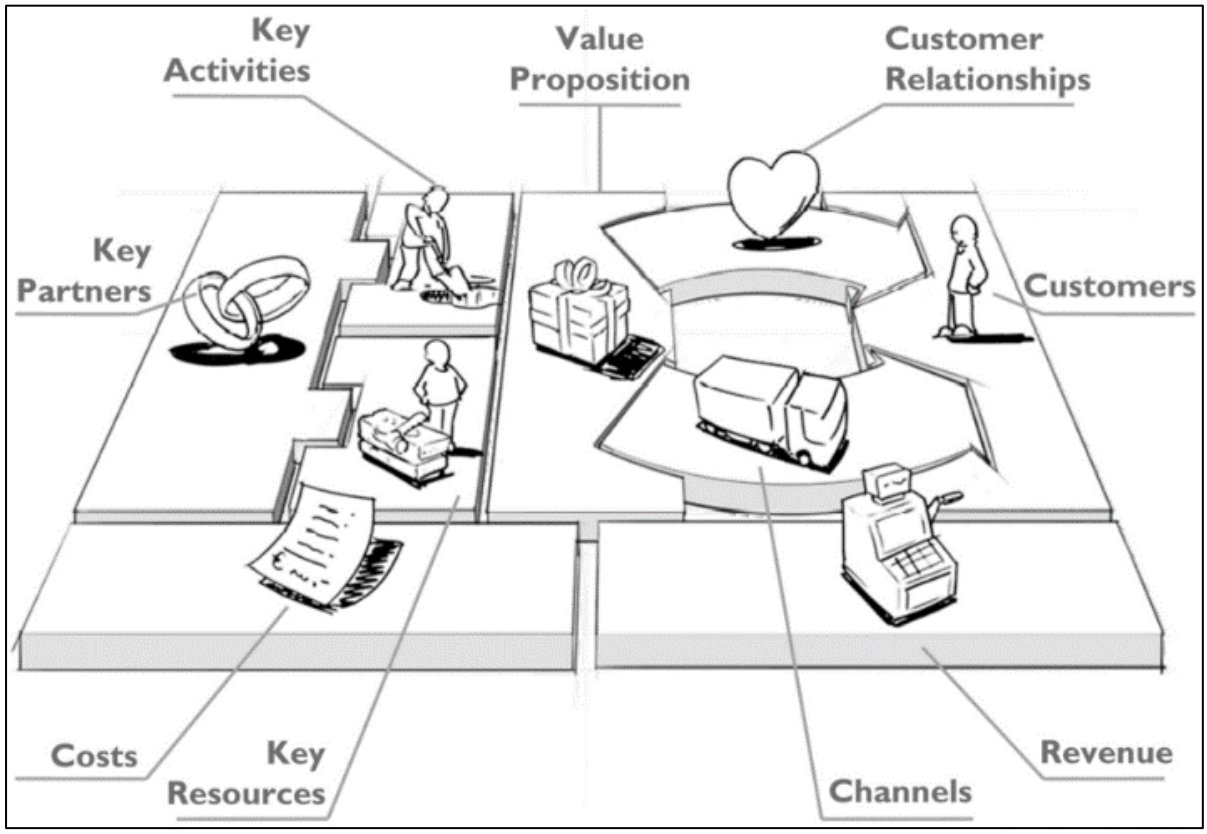


Figure H1: The nine building blocks situated within the Business Model Canvas (Source: Osterwalder and Pigneur, 2010)

1. Customer Relationships: The Customer Segments building block defines the various segments of customers or enterprises that a firm intends to reach and attend to. All businesses have some sort of important customer market. For a customer market to exist, a need that calls for a distinctive offer has to be present.

2. Value Proposition: Once a customer market has been established, value has to be created for the client. A value proposition generates value towards the customer market through different factors that cater for that specific market's needs. Essentially it acts a solution to a client problem or as a satisfaction to a client need. The value proposition defines the parcel of goods and services that generate value for a segment of customers.

3. Distribution Channels: For a value proposition to be delivered to a customer, a channel must exist that describes how the business communicates and delivers that specific value proposition. A channel has several functions including raising customer awareness, customer evaluation of the business and providing customer support after a purchase has been made.

4. Customer Relationships: The customer relationship building block defines the type of connection the business has with its customer market. This is an important connection as it can vastly influence the entire experience a customer might have. Customer relationships can be driven by the following motivations: customer acquisition, customer retention and boosting of sales.

5. Revenue Streams: Revenue streams are the money networks that a business would generate from a specific customer segment who is willing to pay for the created value proposition. Revenue streams can be seen as the arteries to the entire business model.

6. Key Resources: The most important assets that are required in order to support, maintain and allow the business model to operate. Key resources are the strategic assets required to deliver the value proposition to the customer segments.

7. Key Activities: Similarly to key resources, the key activities defines the most imperative activities and processes that a business undertakes to function effectively and deliver the value proposition to the customer segments.

8. Key Partnerships: Key partnerships describe all the company's suppliers and partners necessary to perform the key activities and deliver the value proposition to the customer segments. These partnerships are typically created with other companies to reduce company risk, increase capital, ensure better access to resources as well to optimize each other's business models.

9. Cost Structure: The final building block is the cost structure. It encompasses all the costs that are incurred when a business model is functioning. Costs are incurred during value generation, value delivery, maintaining customer relationships and creating revenue streams. It includes a company's direct costs and overhead taking into account economies of scale.

4. Glossary

This glossary defines the most important terms and concepts found within the design guidelines situated within the tables.

Backward Income Statement: An income statement is generated in a reverse manner by:

1. Estimating the required net profit in order to make the opportunity valuable enough to pursue.
2. Working backwards to obtain an estimated operating profit.
3. Estimating the total sales, cost of sales and therefore the gross profit.
4. Calculating the estimated total overhead expense since *Overhead Expense = Gross Profit – Operating Profit*.
5. Breaking the total overhead expense amount into the estimated individual expense components such as depreciation, salaries & wages, rent etc.

This reverse income statement, which is initially based on assumptions, is then used to identify the necessary key resources, key activities, key partners, distribution channels, cost structure and revenue streams of the business model concept since their influence will be showed within the income statement. As the business model design process goes through the assess, implement, test, scale, manage and adjust stages, the assumptions within the reverse income statement will be refined accordingly leading to them becoming more concrete and accurate with each iterative process.

Building Block Design Guideline: A design guideline which is specific to one of the nine business model building blocks.

Design Guideline: A statement indicating a general direction or line of action which should be executed in order to ensure that a correct, comprehensive and appropriate business model design is designed.

Financial Resource: This consists of cash, credit channels or a stock option pool for contracting important staff.

High-Level Design Guideline: A generic design guideline that applies to the entire business model design process and which is not limited to a specific design application, situation or building block.

Human Resource: People in general are extremely prominent in an enterprise, especially within inventive and knowledge trades.

Intellectual Resource: This entails trademarks, proprietary information, patents, copyrights, partnerships and client databanks.

Job to Be Done: Jobs to be done (JTBD) is a ground-breaking technique used to assist companies in innovation and develop better solutions. It can be seen as high-level concept for which clients purchase goods, solutions or services. This concept assists the company in understanding that clients rent different solutions at different periods of time to be able to get a broad spectrum of jobs completed; clients do not simply buy goods and services.

Christensen (2007) described the JTBD technique as follows: "Most companies segment their markets by customer demographics or product characteristics and differentiate their offerings by adding features and functions. But the consumer has a different view of the marketplace. He simply has a job to be done and is seeking to hire the best product or service to do it." Therefore, if a company fully understands the jobs that the client wants to have completed, the company can generate new market segments and revenue streams. With an understanding of the "job" for which customers find themselves "hiring" a product or service, companies can more accurately develop and market products well-tailored to what customers are already trying to do.

Physical Resource: This consists of physical assets such as manufacturing facilities, buildings, vehicles, machines, systems, point-of-sales systems and distribution networks.

Primary Activities: Primary activities relate directly to the physical creation, sale, maintenance and support of a product or service.

- Inbound logistics: These are all the processes related to receiving, storing, and distributing inputs internally.
- Operations: These are the transformation activities that change inputs into outputs that are sold to customers.
- Outbound logistics: These activities deliver your product or service to your customer.
- Marketing and sales: These are the processes you use to persuade clients to purchase from you instead of your competitors.
- Service: These are the activities related to maintaining the value of your product or service to your customers, once it's been purchased.

Support Activities: These activities support the primary functions.

- Procurement: This is what the organization does to get the resources it needs to operate.
- Human resource management**:** This is how well a company recruits, hires, trains, motivates, rewards, and retains its workers.
- Technological development: These activities relate to managing and processing information, as well as protecting a company's knowledge base.
- Infrastructure: These are a company's support systems, and the functions that allow it to maintain daily operations. Accounting, legal, administrative, and general management are common examples.

Sustainable competitive advantage: A long term competitive advantage which is maintained over other competitors coupled with a difficult to imitate business model.

5. References

→ Christensen, C., Anthony, S., Berstell, G., & Nitterhouse, D. (2007). Finding the Right Job For Your Product. *MIT Sloan Management Review*, 48(3). 38.
→ Osterwalder, A. & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Hoboken: John Wiley & Sons.

Appendix I

Table I1 below lists each question as well as its explanation and purpose. Section 1 of the survey introduced and explained different aspects pertaining to the survey itself, Section 2 obtained demographic and background information of the participant while Section 3 to 12 validated the respective ten design guideline categories.

Table I1: First Delphi round survey questions and their descriptions.

Survey Section	Question Number	Question	Explanation and purpose
2	2	Provide your name below.	This aims to record the participants name in order to keep track of each participant's answers.
2	3	What is your Job Description/Title?	This is to gain a clearer picture of what type of work the participant does, in particular if they are more industry or academically orientated.
2	4	Which of the following currently best describes your current job level?	This questions aims to obtain the level of seniority in his/her organisation.
2	5	Which of the following best describes the principal industry of your organization?	This aims to gain what type of industry the participant is situated in.
2	6	If "Other" was chosen in question 4 above, please specify the principle industry.	The participant could add his/her own industry if their industry could not be found in question 5.
2	7	Have you ever been involved in a business model design or reconfiguration process?	This is to gain a better understanding of whether the participant has any background/experience in business model design or reconfiguration and hence BMI.
2	8	If "Yes" was chosen above in question 6, please elaborate further in order to provide more context.	The participant was given the opportunity to elaborate on question 7 in more detail.
2	9	List the years of experience within one or more of the following research fields: Business Models; Business Model Design or Reconfiguration; BMI.	Question 9 aimed to gain the extent of the participants experience in the fields to the left. All three fields are relevant to the survey.

3 - 12	10, 14, 18, 22, 26, 30, 34, 38, 42, 46	Do you agree or disagree with the _____ design guidelines shown in the above table?	This question aimed to obtain the perceived success of the design guidelines through the use of a 5 response Likert scale: 1 = Strongly Disagree; 2 = Disagree, 3 = Undecided; 4 = Agree; 5 = Strongly Agree. The underscore represents the ten design guideline categories/components as tested in Sections three to twelve.
3 - 12	11, 15, 19, 23, 27, 31, 35, 39, 43, 47.	If any, please separately list the _____ design guidelines you do not agree with and motivate/explain why next to each listed guideline. This is compulsory if answer option 1, 2 or 3 was chosen.	This was done to give the participant an opportunity to disagree. It was compulsory to explain their disagreement in order to motivate/ substantiate their disagreement.
3-12	12, 16, 20, 24, 28, 32, 36, 40, 44, 48.	Are there any other critical _____ design guidelines which you feel must be added, or improvements which should be made? This must be especially considered if option 1, 2 or 3 was chosen.	This 'Yes' or 'No' question aims to introduce the idea of which improvements can be made to the current set of design guidelines. Those participants that initially disagreed in any way was encouraged to choose 'Yes' in order to gain additional feedback.
3 – 12	13,17, 21, 25, 29, 33, 37, 41, 45, 49.	If "Yes" was chosen, please list separately each _____ design guideline in a concrete design statement and then motivate/explain next to each added/improved design guideline the reason for its addition or improvement.	This follow up statement intended to gain the necessary improvements and the participant's particular reason for the improvement itself.

The second round survey did not contain Section 2, from Table I1 due to the twelve participants already having entered their background information in the first round survey. The closed-ended Likert scale question remained the same for all ten design guideline categories. The questions found in the last three rows of Table I1 was combined into one follow-up question in order to reduce the second survey's length to encourage second round participation. The questions and their relative explanation and purpose can be seen on the following page in Table I2.

Table I2: Second Delphi round survey questions and their descriptions

Survey Section	Question Number	Question	Explanation and purpose
2 - 11	2, 4, 6, 8, 10, 12, 14, 16, 18, 20.	Do you agree or disagree with the _____ design guidelines shown in the above table?	Identical question from Table 5.7.
2 - 11	3, 5, 7, 9, 11, 13, 15, 17, 19, 21.	If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.	This question was generated in order to reduce the number of total questions from the first survey. The question aims to force participants to explain their disagreement while allowing all participants to give their recommendations as to what could be improved regardless of their answer choice in the previous Likert scale question.

Appendix J

Appendix J contains the first design guideline questionnaire as was seen by the participants on Google Forms.

1. Business Model Building Block Design Guideline Validation

Thank you for agreeing to participate in this questionnaire. Just to refresh your memory, this validation process centers on a thesis topic called: A Business Model Innovation Framework for Capturing White Space Opportunities.

This questionnaire aims to validate and investigate further possible design guidelines for the building blocks found within a business model.

Please make sure that you have read through the summary material that was previously emailed to you.

The research is conducted in accordance with the Stellenbosch University's Framework Policy for the Assurance and Promotion of Ethically Accountable Research. The participant may gladly ask about any questions regarding this matter for further clarification.

Please note that you as the participant will be assigned an identification number to guarantee your personal details remain anonymous within the thesis document itself.

Please remember that your participation is completely voluntary and that you are fully allowed to stop and leave the validation process at any point in time. Before completing the survey, if there are there any circumstances, concepts or aspects of any type that requires further clarification, please contact the investigator at 17171830@sun.ac.za or (+27)768339235.

The survey questions within the following sections must please be completed in sufficient detail and to the best of your knowledge. The investigator urges to write in much more detail than required rather than too little.

The survey uses the Likert Scale (5. Strongly Agree to 1. Strongly Disagree) where necessary. It is compulsory to elaborate on your answer choice if "Undecided", "Disagree" or "Strongly Disagree" is ever chosen.

Please remember that the questionnaire must be completed by the 1st of June 2017.

Only once you as the participant have read through and understood the above, and have understood the summary material with no related queries, may your email address be filled in below and the questionnaire be completed.

1. **Email address** *

2. Personal Background

Section two aims to obtain personal background details for credibility purposes.

2. **Provide your name below.**

3. **What is your Job Description/Title?**

4. **Which of the following currently best describes your current job level?**
Mark only one oval.

- ◯ Owner/Executive/C-Level
- ◯ Senior Management
- ◯ Middle Management
- ◯ Entry Level Management

5. **Which of the following best describes the principal industry of your organisation?**
Mark only one oval.

- ◯ Advertising & Marketing
- ◯ Agriculture
- ◯ Airlines & Aerospace (including Defense)
- ◯ Automotive
- ◯ Business Support & Logistics
- ◯ Construction, Machinery, and Homes
- ◯ Education
- ◯ Entertainment & Leisure
- ◯ Finance & Financial Services
- ◯ Food & Beverages
- ◯ Government
- ◯ Healthcare & Pharmaceuticals
- ◯ Insurance
- ◯ Manufacturing
- ◯ Nonprofit
- ◯ Retail & Consumer Durables
- ◯ Real Estate
- ◯ Telecommunications, Technology, Internet & Electronics
- ◯ Transportation & Delivery
- ◯ Utilities, Energy, and Extraction
- ◯ I am currently not employed
- ◯ Other

6. **If "Other" was chosen in question 5 above, please specify the principle industry.**

_____

_____

7. **Have you ever been involved in a business model design or reconfiguration process?**
Mark only one oval.

- ◯ Yes
- ◯ No

8. **If "Yes" was chosen above in question 7, please elaborate further in order to provide more context.**

_____

_____

9. **List the years of experience within one or more of the following research fields:**
Mark only one oval per row.

	No Experience	Experience < 1 Year	1 Year <= Experience < 3 Years	3 Years <= Experience < 5 Years	5 Years <= Experience < 10 Years	Experience => 10 Years
Business Models	◯	◯	◯	◯	◯	◯
Business Model Design & Reconfiguration	◯	◯	◯	◯	◯	◯
Business Model Innovation	◯	◯	◯	◯	◯	◯

3. High Level Design Guideline Validation

Section three aims to validate and investigate further possible High Level business model design guidelines.

High Level Design Guideline Definition: A generic design guideline that applies to the entire design process in general and which is not limited to a specific application, situation or component.

Table 1: High Level (HL) Design Guidelines

#	Design Guidelines
$HL1_1$	Utilise the mobilise, identify, understand, design, assess, implement, test, scale, manage and adjust stages.
$HL2_1$	Align the business's strategy with the design process in order to obtain a business model that will possess a sustainable competitive advantage.

14. **Do you agree or disagree with the Customer Segment design guidelines shown in the above table?**
Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

15. **If any, please separately list the Customer Segment design guidelines you do not agree with and motivate/explain why next to each listed guideline. This is compulsory if answer option 1, 2 or 3 was chosen.**

_____

_____

12. **Are there any other critical High Level design guidelines which you feel must be added, or improvements which should be made? This must be especially considered if option 1, 2 or 3 was chosen.**
Mark only one oval.

- ◯ Yes
- ◯ No

13. **If "Yes" was chosen please list separately each added/improved High Level design guideline in a concrete design statement and then motivate/explain next to each added design guideline the reason for its addition or improvement.**

_____

_____

10. **Do you agree or disagree with the High Level design guidelines shown in the above table?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

4. Customer Segments

Section four aims to validate and investigate further possible design guidelines for the Customer Segment's business model building block.

e with and
wer option 1,

Table 2: Customer Segment (CuSe) Design Guidelines

#	Design Guidelines
$CuSe1_1$	Define who the business is creating value for.
$CuSe2_1$	Group customers into distinct segments with common needs, common behaviours or other attributes.
$CuSe3_1$	Group customers into separate segments with the following criteria: • Customer needs that require and justify a distinct offer. • Customers must be reached through different distribution channels. • Customers require different types of relationships. • Customers have substantial different profitability's. • Customers are willing to pay for different aspects of the value offer • Common needs, common behaviours or other attributes.
$CuSe4_1$	Identify which customers will be served and which will not be served.
$CuSe5_1$	Define who the most important customers are.
$CuSe6_1$	Identify the customer's Job to be Done.

14. **Do you agree or disagree with the Customer Segment design guidelines shown in the above table?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

15. **If any, please separately list the Customer Segment design guidelines you do not agree with and motivate/explain why next to each listed guideline. This is compulsory if answer option 1, 2 or 3 was chosen.**

16. **Are there any other critical Customer Segment design guidelines which you feel must be added, or improvements which should be made? This must be especially considered if option 1, 2 or 3 was chosen.**
Mark only one oval.

- Yes
- No

17. **If "Yes" was chosen please list separately each Customer Segment design guideline in a concrete design statement and then motivate/explain next to each added/improved design guideline the reason for its addition or improvement.**

5. Value Proposition

Section five aims to validate and investigate further possible design guidelines for the Value Proposition business model building block.

Table 3: Value Proposition (VP) Design Guidelines

#	Design Guidelines
$VP1_1$	Ensure the value proposition fulfils the identified customer's Job to be Done.
$VP2_1$	Each Value Proposition should consist of a selected bundle of products and/or services that caters to the requirements of a specific Customer Segment.
$VP3_1$	Consider the barriers that limit customers from getting a job done: wealth, access, skill and time.

18. **Do you agree or disagree with the Value Proposition design guidelines shown in the above table?**

Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

19. **If any, please separately list the Value Proposition design guidelines you do not agree with and motivate/explain why next to each listed guideline. This is compulsory if answer option 1, 2 or 3 was chosen.**

20. **Are there any other critical Value Proposition design guidelines which you feel must be added, or improvements which should be made? This must be especially considered if option 1, 2 or 3 was chosen.**

Mark only one oval.

- Yes
- No

21. **If "Yes" was chosen please list separately each Value Proposition design guideline in a concrete design statement and then motivate/explain next to each added/improved design guideline the reason for its addition or improvement.**

6. Distribution Channels

Section six aims to validate and investigate further possible design guidelines for the Distribution Channel's business model building block.

Table 4: Distribution Channel (DC) Design Guidelines

#	Design Guidelines
$DC1_1$	Generate a backward income statement which will lead to the generation of good assumptions which can then be used to identify the Distribution Channels.
$DC2_1$	Establish how the Value Proposition will reach each customer segment.

22. **Do you agree or disagree with the Distribution Channel design guidelines shown in the above table?**
Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

23. **If any, please separately list the Distribution Channel design guidelines you do not agree with and motivate/explain why next to each listed guideline. This is compulsory if answer option 1, 2 or 3 was chosen.**

_____

_____

24. **Are there any other critical Distribution Channel design guidelines which you feel must be added, or improvements which should be made? This must be especially considered if option 1, 2 or 3 was chosen.**
Mark only one oval.

- ◯ Yes
- ◯ No

25. **If "Yes" was chosen please list separately each Distribution Channel design guideline in a concrete design statement and then motivate/explain next to each added/improved design guideline the reason for its addition or improvement.**

_____

_____

7. Customer Relationship

Section seven aims to validate and investigate further possible design guidelines for the Customer Relationship business model building block.

Table 5: Customer Relationship (CR) Design Guidelines

#	Design Guidelines
$CR1_1$	Define what type of relationship does each of the customer segments expect the business to establish and maintain with them.
$CR2_1$	Quantify how costly the customer relationship will be.
$CR3_1$	Establish how the customer relationships are integrated with the rest of the business model.

26. Do you agree or disagree with the Customer Relationship guidelines shown in the above table?

Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

27. If any, please separately list the Customer Relationship design guidelines you do not agree with and motivate/explain why next to each listed guideline. This is compulsory if answer option 1, 2 or 3 was chosen.

28. Are there any other critical Customer Relationship design guidelines which you feel must be added, or improvements which should be made? This must be especially considered if option 1, 2 or 3 was chosen.

Mark only one oval.

- Yes
- No

29. If "Yes" was chosen please list separately each Customer Relationship design guideline in a concrete design statement and then motivate/explain next to each added/improved design guideline the reason for its addition or improvement.

8. Revenue Stream

Section eight aims to validate and investigate further possible design guidelines for the Revenue Stream business model building block.

Table 6: Revenue Stream (RS) Design Guidelines

#	Design Guidelines
$RS1_1$	Generate a backward income statement which will lead to the generation of good assumptions which can then be used to identify the Revenue Streams.
$RS2_1$	Define what type or mix of revenue streams the business model will have, either: 1. Transactional revenues (one-time customer payments). 2. Recurring revenues (ongoing customer payments).
$RS3_1$	Define what the pricing mechanism each revenue stream will have, either: 1. Fixed Menu Pricing (predefined prices based on static variables). 2. Dynamic Pricing (Prices that change based on market conditions).

30. **Do you agree or disagree with the Revenue Stream design guidelines shown in the above table?**
Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

31. **If any, please separately list the Revenue Stream design guidelines you do not agree with and motivate/explain why next to each listed guideline. This is compulsory if answer option 1, 2 or 3 was chosen.**

_____

_____

32. **Are there any other critical Revenue Stream design guidelines which you feel must be added, or improvements which should be made? This must be especially considered if option 1, 2 or 3 was chosen.**
Mark only one oval.

- ◯ Yes
- ◯ No

33. **If "Yes" was chosen please list separately each Revenue Stream design guideline in a concrete design statement and then motivate/explain next to each added/improved design guideline the reason for its addition or improvement.**

_____

_____

9. Key Resources

Section nine aims to validate and investigate further possible design guidelines for the Key Resources business model building block.

Table 7: Key Resource (KR) Design Guidelines

#	**Design Guidelines**
$KR1_1$	Generate a backward income statement which will lead to the generation of good assumptions which can then be used to identify the Key Activities.
$KR2_1$	Identify the required key resources for the Value Proposition, Distribution Channels, Customer Relationships and Revenue Streams and then categorise them into the following categories: • Physical (Manufacturing facilities, buildings, vehicles, equipment and machines, systems, distribution networks, technology, products) • Intellectual (Trademarks, information, patents, copyrights, branding, alliances and partnerships) • Human • Financial (Cash, credit channels, staff stock option pool, funding)

34. **Do you agree or disagree with the Key Resource design guidelines shown in the above table?**

Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

35. **If any, please separately list the Key Resource design guidelines you do not agree with and motivate/explain why next to each listed guideline. This is compulsory if answer option 1, 2 or 3 was chosen.**

36. **Are there any other critical Key Resource design guidelines which you feel must be added, or improvements which should be made? This must be especially considered if option 1, 2 or 3 was chosen.**

Mark only one oval.

- ◯ Yes
- ◯ No

37. **If "Yes" was chosen please list separately each Key Resource design guideline in a concrete design statement and then motivate/explain next to each added/improved design guideline the reason for its addition or improvement.**

10. Key Activities

Section ten aims to validate and investigate further possible design guidelines for the Key Activities business model building block.

Table 8: Key Activities (KA) Design Guidelines

#	Design Guidelines
$KA1_1$	Generate a backward income statement which will lead to the generation of good assumptions which can then be used to identify the Key Activities.
$KA2_1$	Identify the key activities required for the value proposition, distribution channels, customer relationships and revenue streams and then categorise them into: 1. Primary Activities 2. Support Activities.

38. **Do you agree or disagree with the Key Activity design guidelines shown in the above table?**

Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

39. **If any, please separately list the Key Activity design guidelines you do not agree with and motivate/explain why next to each listed guideline. This is compulsory if answer option 1, 2 or 3 was chosen.**

40. **Are there any other critical Key Activity design guidelines which you feel must be added, or improvements which should be made? This must be especially considered if option 1, 2 or 3 was chosen.**

Mark only one oval.

- Yes
- No

41. **If "Yes" was chosen please list separately each Key Activity design guideline in a concrete design statement and then motivate/explain next to each added/improved design guideline the reason for its addition or improvement.**

11. Key Partnerships

Section eleven aims to validate and investigate further possible design guidelines for the Key Partnerships business model building block.

Table 9: Key Partnerships (KP) Design Guidelines

#	**Design Guidelines**
$KP1_1$	Generate a backward income statement which will lead to the generation of good assumptions which can then be used to identify the Key Activities.
$KP2_1$	Consider the following four types of partnerships to aid in the design process: 1. Strategic alliances between non-competitors. 2. Coopetition: Strategic partnerships between competitors. 3. Joint ventures to develop new businesses. 4. Buyer-supplier relationships to assure reliable supplies.

42. **Do you agree or disagree with the Key Partnership design guidelines shown in the above table?**

Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

43. **If any, please separately list the Key Partnership design guidelines you do not agree with and motivate/explain why next to each listed guideline. This is compulsory if answer option 1, 2 or 3 was chosen.**

44. **Are there any other critical Key Partnership design guidelines which you feel must be added, or improvements which should be made? This must be especially considered if option 1, 2 or 3 was chosen.**
Mark only one oval.

- ◯ Yes
- ◯ No

45. **If "Yes" was chosen please list separately each Key Partnership design guideline in a concrete design statement and then motivate/explain next to each added/improved design guideline the reason for its addition or improvement.**

12. Cost Structure

Section twelve aims to validate and investigate further possible design guidelines for the Cost Structure business model building block.

Table 10: Cost Structure (CoSt) Design Guidelines

#	Design Guidelines
$CoSt1_1$	Generate a backward income statement which will lead to the generation of good assumptions which can then be used to identify the Cost Structure.
$CoSt2_1$	Define what balance the business model will have between the two extremes of having: 1. A Cost-Driven (minimisation of costs) Cost Structure. 2. A Value-Driven (value maximisation) Cost Structure.

46. **Do you agree or disagree with the Cost Structure design guidelines shown in the above table?**
Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

47. **If any, please separately list the Cost Structure design guidelines you do not agree with and motivate/explain why next to each listed guideline. This is compulsory if answer option 1, 2 or 3 was chosen.**

48. **Are there any other critical Cost Structure design guidelines which you feel must be added, or improvements which should be made? This must be especially considered if option 1, 2 or 3 was chosen.**
Mark only one oval.

- ◯ Yes
- ◯ No

49. **If "Yes" was chosen please list separately each Cost Structure design guideline in a concrete design statement and then motivate/explain next to each added/improved design guideline the reason for its addition or improvement.**

Appendix K

Appendix K contains the background information of each participant from the first design guideline survey.

2. Provide your name below.

Table K1: Each participant obtains a reference number.

Name	Allocate Number to Participant (P#)
[redacted]	1
[redacted]	2
[redacted]	3
[redacted]	4
[redacted]	5
[redacted]	6
[redacted]	7
[redacted]	8
[redacted]	9
[redacted]	10
[redacted]	11
[redacted]	12

3. What is your Job Description/Title?

P#	Job Description/Title	Industry/Academic
1	Dean	Academic
2	Director – innovation consultancy	Industry
3	Director	Industry
4	Chief Innovation Officer (CIO)	Industry
5	Professor	Academic
6	Manger Strategy and Innovation – Business Model Transformation	Industry
7	Assistant Director	Industry
8	Partner	Industry
9	Business Designer and Dr	Industry/Academic
10	Strategy Consultant and Adjunct Professor	Industry/Academic
11	Director & PhD	Industry/Academic
12	Associate Director	Industry

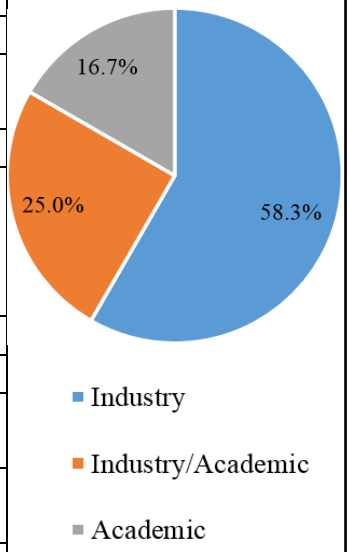


Figure K1: Each participant's job description and industry/academic position.

4. Which of the following currently best describes your current job level?

P#	Job Level
1	Owner/Executive/C-Level
2	Senior Management
3	Owner/Executive/C-Level
4	Owner/Executive/C-Level
5	Senior Management
6	Middle Management
7	Middle Management
8	Owner/Executive/C-Level
9	Owner/Executive/C-Level
10	Owner/Executive/C-Level
11	Owner/Executive/C-Level
12	Senior Management

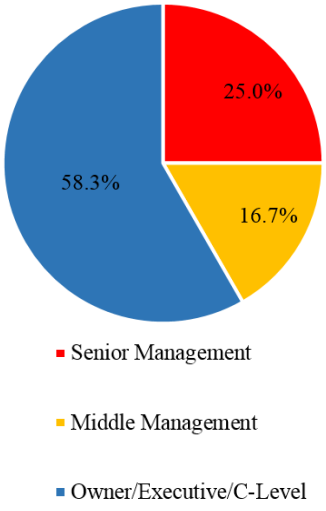


Figure K2: Each participant's job level

5. Which of the following best describes the principal industry of your organization?

P#	Principle Industry
1	Education
2	Other
3	Other
4	Other
5	-
6	Finance & Financial Services
7	Education
8	Other
9	Other
10	Other
11	Business Support & Logistics
12	Other

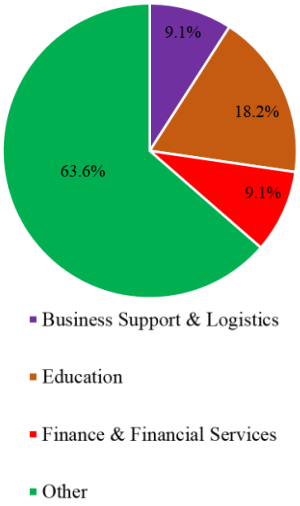


Figure K3: Each participant's principle job industry

6. If "Other" was chosen in question 4 above, please specify the principle industry.

Table K2: "Other" specified industries

P#	"Other" Industry
3	Advisory services
4	Professional Services
8	Professional Services / Consultancy
9	Consultancy
10	Strategy and value consulting
12	Management Consulting

7. Have you ever been involved in a business model design or reconfiguration process?

P#	Yes/No
1	Yes
2	Yes
3	Yes
4	Yes
5	Yes
6	Yes
7	No
8	Yes
9	Yes
10	Yes
11	Yes
12	Yes

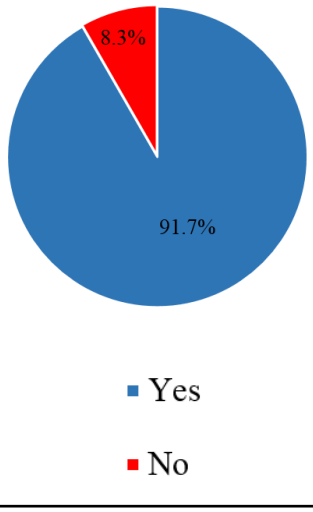


Figure K4: Yes/No answer to question seven.

8. If "Yes" was chosen above in question 7, please elaborate further in order to provide more context.

Table K3: Each participant's explanation to question seven.

P#	Business Model Design/Reconfiguration Explanation
1	Was teaching (inclusive) business model innovation; created and mentored a "solution space"; running an innovation ecosystem in which parties develop new business models
2	17 years of experience helping clients to construct innovative opportunities and business models
3	We advise entities on their most optimum business model
4	We help clients with Business Model Innovation
5	During strategy critique processes for companies
6	Business model transformation for banks and new startups
8	Business Model Innovation / Redesign is within our services offering to clients
9	For the past 5 years I design business models for collaborative research projects. Next to that I do business model redesign for companies
10	My own consulting businesses but there was no formal design process.
11	As part of our consulting services we use business model design (specifically the value proposition and business model canvas methodologies of Osterwalder) very often as high-level tools to get clients focused on their business models and represent it on one page.
12	Numerous client engagements

9. List the years of experience within one or more of the following research fields:

P#	Business Models	Business Model Design or Reconfiguration	Business Model Innovation
1	Experience => 10 Years	-	Experience => 10 Years
2	Experience => 10 Years	1 Year <= Experience < 3 Years	Experience => 10 Years
3	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years
4	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years
5	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years
6	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years
7	Experience < 1 Year	Experience < 1 Year	Experience < 1 Year
8	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years
9	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	3 Years <= Experience < 5 Years
10	Experience => 10 Years	No Experience	No Experience
11	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years
12	3 Years <= Experience < 5 Years	3 Years <= Experience < 5 Years	1 Year <= Experience < 3 Years

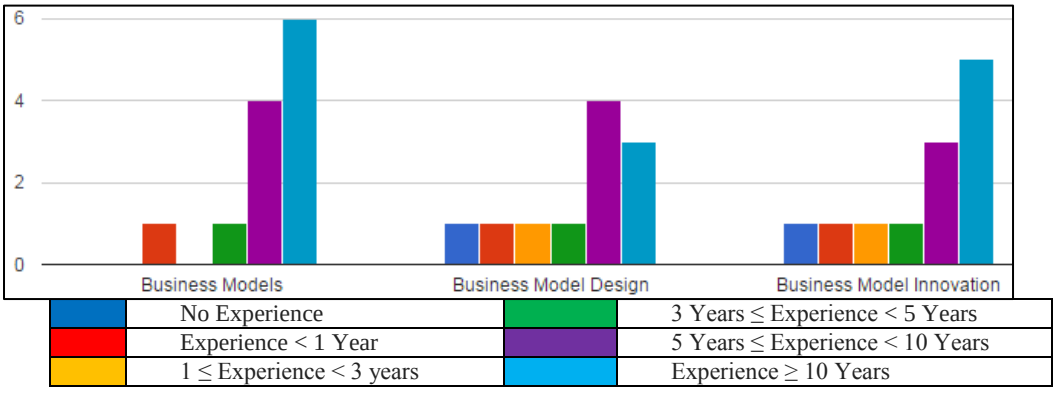


Figure K5: Participant experience in three research domains

Appendix L

Appendix L contains the participant feedback from the first design guideline survey related to their agreement/disagreement for each design guideline category.

Table L1: High-Level Design Guideline Disagreements

P#	Comment	Solution
1	There is an inherent contradiction between a (over) structured approach, versus the potential of experimenting in the free space that uncertainty creates. I hence have a fundamental question concerning detailed innovation methods	Emphasize the process flexibility of the white space BMI framework in its dissertation description.
		Alter Guideline HL1$_1$: Utilise the mobilise, identify, understand, design, assess, implement, test, scale, manage and adjust stages, *which is flexible in nature and does not have to be followed in a strict linear fashion*.
10	The first set of guidelines are more sensible than the second set of guidelines.	Concentrate on guideline HL1$_1$ when developing the proposed framework.
12	Emphasis may be given to various factors depending on the nature of the organisation and competitive intent. For example, "understand" may be implicit and "assess" could happen prior to design. The issue is in the linear flow. Agile methods allow for experimentation / POC rather than a strict phasing: "implement" could happen during design for example.	See solution for Participant 1 above.

Table L2: Customer Segment Design Guideline Disagreements

P#	Comment	Solution
1	Same remark as before. The more structure you give in all guidelines, the more people are going to follow that structure, bench their answers against that structure, and eventually loose the opportunity to create new innovations.	Emphasise the flexibility of the design guidelines within round two's summary document.
9	Guideline CS5 is vague. It may result in focussing on customers who generate the highest revenues today but who are part of a shrinking segment. When you design a business model, you design it for future business and you need to look at future customer needs, pains and gains with the job.	**Alter Guideline CuSe5$_1$**: Define the most important customers *that are in line with the future business model*.
		New Guideline: Consider current and future customer needs, pains and gains associated with the customers Job to Be Done.
12	Define 'aspiration' or 'goal' first. Not every segment is created for the intent of profitability. Take the case of Amazon on customer growth – a revenue focus – for it's first decade.	**New Guideline**: Define the business model's aspiration or goal for each customer segment.

Table L3: Value Proposition Design Guideline Disagreements

P#	Comment	Solution
1	VP 1 is a very general statement, and not really a guideline. Not sure whether it relates to design or purpose.	**Alter Guideline VP1$_1$**: Ensure the value proposition *is designed and developed in such a way that it* fulfils the identified customer's job to be done.
	Also research and include value creation and value creation strategy guidelines	**New Guideline**: Consider the following types of value the business model can generate when designing the value proposition: Functional, experiential/hedonic, symbolic/expressive, cost/sacrifice.
		New Guideline: Ensure the business model's value creation strategy is comprised of the following types of value: Performance, pricing, relationship and co-creation.
10	Is it more valuable to the customer than its cost (time and money)	**New Guideline**: Consider whether the overall value of the product to the customer is larger than the total cost to the customer in terms of time and money (sacrifice value such as time and money).
12	Not all customer propositions are "Jobs to be done" as per Christensen, albeit the majority are. There's a very significant portion which rely on creating a new desire or aspiration in a client (e.g. luxury purchases). Christensen may argue this is a job as well, but that is perhaps an overly simplistic. The job never existed until you created the desire within the client.	**New Guideline**: Consider how new customer desires or aspirations can be created in line with the Value Proposition. This new guideline was combined with the solution to Participant 6 in Table M3 in Appendix M.
	Consider also the whole customer mission in terms of value: ie: purchase, delivery, use, supplements, maintenance and disposal	**New Guideline**: Identify value along the complete customer journey, from purchase, delivery, use, supplements, maintenance and disposal.

Table L4: Distribution Channel Design Guideline Disagreements

P#	Comment	Solution
3	The backward income statement could be one of the tools utilized to identify the Distribution Channels but should not be the only tool.	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
6	The 2 examples are at different levels of the organisation. One talks to financial aspirations and the other talks to customer design. Do not target each customer segment but specific ones.	Disregard. This was taken into account in guideline $CuSe5_1$: "Define who the most important customers are."
8	Backward income statement is how to evaluate the options available - cost might not be the deciding factor.	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
	Consider this website for extra guidelines: https://www.cleverism.com/selecting-managing-channels-business-model-canvas/	**New Guideline**: Consider the following when selecting distribution channels: • Number of customer segments • Investment required. • Whether the product is standard across the customer segments. • Amount of control required. • How long a healthy relationship will take to be established with the distributor as well as the length of the relationship. • Factors which contribute to the flexibility of the channel.
		New Guideline: Consider the following channel phases: 1) Awareness, 2) Evaluation, 3) Purchase, 4) Delivery, 5) After Sales.
		New Guideline: Consider the following two types of channels: 1) Own/Direct Channel, 2) Partner/Indirect Channel.
9	The backward income statement should not be the starting point in a business model design project. The most important elements of this building block are how to engage customers, deliver your proposition and support them after their purchase. Limitations in financial resources are to be dealt with on project level, not on building block level.	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
		New Guideline: When selecting distribution channels, consider how the distribution channel will deliver the value proposition, engage customers, as well as support customers afterwards.
10	What is the throughput or GP per customer; Pareto principle	**Shift to Customer Segments - New Guideline**: Calculate the gross profit per customer segment and then apply the 80/20 rule in order to target 20% of the customer that generate 80% of total financial value.

12	A commercial model, whether income statement or other, is not only dependent on the distribution channel, rather the entire CVP. Secondly identifying distribution channels through an income statement makes little sense beyond commercial viability - that's a testing / validation question. Coming up with distribution channel possibilities is an ideation that needs to begin outside the realm of financial statements. Finally, an income statement is only one tool of commercial validation. A simple DCF model on the investment can do as well.	The entire CVP aspect was taken into account in the new guideline in Participant 9's comment above.
		Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.

Table L5: Customer Relationship Design Guideline Disagreements

P#	Comment	Solution
1	I miss the customer intimacy angle. Really try to get close to your customer and live your customer from his or her perspective. The risk here is that you try to fit a customer in your frame.	**New Guideline**: Obtain an angle on customer intimacy by obtaining a customer's perspective.
9	The guideline on cost quantification is not exclusively for this building block and can only be seen in the context of the complete business model	Remove guideline $CR2_1$.
		Shift to Cost Structure - New Guideline: Derive your cost streams from all the other business model building blocks.
12	What about exceeding expectations?	**New Guideline**: Consider how customer expectations can be exceeded.

Table L6: Revenue Stream Design Guideline Disagreements

P#	Comment	Solution
1	But for me rs1 is downstream of the design/business model innovation process	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
8	This looks like there are only a few options to pick from – revenue stream design needs to be approached more creatively, i.e. options to make money from your value proposition. This includes considering partnerships.	**New Guideline**: Consider how other additional supporting Revenue Streams can be generated from the delivery as well as support of the Value Proposition.
		See solution for Participant 9 in Table K9: Identify and consider what additional value the Key Partners can bring to each business model building block.
		New Guideline: Consider the bundling of products and services in generating new revenue streams.
9	The backward income statement does not seem to fit here. On a general high-level, I use the business model canvas for designing the business model concept and combine it with a business case for detailing out the financials like cashflow, turnover, costs etc.	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.

Table L7: Key Resources Design Guideline Disagreements

P#	Comment	Solution
1	But same story, for me backward income statement is downstream	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
3	As per the previous comment. The backward income statement should only be one of the tools to identify key resources.	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
8	backward income statement - financials come last not first - you diverge before you converge if you want to end up with an innovative design	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
9	Again, ito the backward income statement is not to be used on building block level.	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.

12	Again, do not start with the income statement to identify key resources, use this instead to validate.	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
	Resourcing should be based on the CVP delivery and what skills or capabilities it takes to deliver it.	Disregard. Taken into account in guideline $KR2_1$.

Table L8: Key Activity Design Guideline Disagreements

P#	Comment	Solution
1	There is a strong focus on the financial dimension and its consequences. They are important, but for me should never come in the design phase (but in the downstream)	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
3	As per the previous comment, the backward income statement should be only one of the tools to identify the key activities.	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
8	Again, backward income statement - it has no place at the front end of design	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
9	Key Activities, just as Key Resource, are unique to your company. I never include support activities in a business model, since they are not unique, every company has to do HRM and administration. They should be included in the Business Case of course.	**Alter guideline $KA2_1$**: Identify the key activities required for the value proposition, distribution channels, customer relationships and revenue streams and then categorise them into: 1. Primary Activities 2. Support Activities. *Choose then those activities that are core to the business model.*
12	Same problem. Activity identification does not start with an income statement.	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.

Table L9: Key Partnership Design Guideline Disagreements

P#	Comment	Solution
1	KP2 is a valuable brainstorm.	Keep comment $KP2_1$.
3	As per previous comment, the backward income statement should be one of many tools utilized to identify the necessary partners.	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
8	backward income statements - see previous comment	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
9	The guidelines only describe the types of partnerships, not the rationale behind it such as: value purpose, creation and deliverance by value exchange, how partners can influence other blocks.	**New Guideline**: Define the purpose of the partnership - the set of value contributions desired from a partner.
		New Guideline: Define how you will create and deliver value to your partner (it needs to be a value exchange).
		New Guideline: Identify and consider what additional value the Key Partners can bring to each business model building block.
12	Same income statement problem.	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.

Table L10: Cost Structure Design Guideline Disagreements

P#	Comment	Solution
1	Though for me, only the value and cost driven alternative is a real alternative. Backward IS is a race downwards.	Shift the backward income statement to the Cost Structure and Revenue Stream building blocks to be used as a final tool and validation technique.
3	The backward income statement should guide the quantum of cost that could not be succeeded to ensure a viable business.	See solution to Participant 1 above.
8	Backward income statement.	See solution to Participant 1 above.
9	Backward income statement as discussed earlier.	See solution to Participant 1 above.
10	I agree with the second set of guidelines more than the first set of guidelines.	See solution to Participant 1 above.
12	Same income statement problem.	See solution to Participant 1 above.

Appendix M

Appendix M contains the participant feedback from the first design guideline survey related to their suggested improvements for each design guideline category.

Table M1: High-Level Design Guideline Additions/Improvements

P#	Comment	Solution
4	Defining what a business model is first and foremost. Then establishing a process to analyze, improve, design and implement a system is major.	**New Guideline**: Obtain a good understanding a business model before commencing with the BMI process.
9	The business model design process should not only be linked to the business strategy but also to the mission & vision of the company since they provide the justification and reason (the why) for the design process.	**New Guideline**: Ensure the business model design process is aligned with the mission and vision of the company.
10	Value creation potential, e.g., NPV	**New Guideline**: Consider the value creation potential of the new business model by calculating its NPV for example.

Table M2: Customer Segment Design Guideline Additions/Improvements

P#	Comment	Solution
4	For every Job to be Done, customers use hiring criteria to choose a solution. Hence knowing this is important while segmenting customers	**New Guideline**: Identify and take into account the hiring criteria customers use when they choose a solution.
7	Figure out the customer's main problem (design thinking principle).	See solution for participant 3 in Table M3.
9	I would suggest to add a guideline that urges designers to engage with customers. Make sure you really understand your customer's business, life, worries and needs.	**New Guideline**: Engage with customers in order to gain a better customer understanding. Consider their businesses, life, worries and needs.

Table M3: Value Proposition Design Guideline Additions/Improvements

P#	Comment	Solution
3	The value proposition design guidelines could be defined according to criteria which links to how the value proposition would fulfill the customer's identified job. For example, the customer's identified job may not only be a physical need but also an emotional fulfillment. The design guideline needs to incorporate functional, emotional and social needs and problems of customers as well. For example Facebook is more aimed at providing the fulfillment of an emotional need/job to stay connected that a physical need/job.	**Following on from the previous alteration in Table L3 - Alter Guideline VP1$_1$**: Ensure the value proposition is designed *with user-centered design thinking* - developed in such a way that it fulfils the identified customer's *functional, emotional and social* job to be done, *need or problem.* Takes into account participant seven's comment below.
4	What are key offerings versus complementary offering we will provide to help customers get the job done?	**New Guideline**: Define the key and complementary offerings that will assist the customers to get their job done.
6	User experience design, Customer pains, customer value perception and gains points.	**New Guideline**: Design the value proposition in line with the customers experience, customer value perception, pains and gains. This guideline is combined with participant twelve's comment in Table L3 as mentioned.
	What about products and services that customer has not asked for. If Henry Ford asked people what they wanted then they would have said a faster horse	**New Guideline**: Consider what additional products and services can be offered that customers have not explicitly asked for.
7	Again, consider the customer's problem and use user-centered design thinking to solve that problem.	Covered in the solution to Participant 3's comment above.
9	Additional guideline: Show how your value proposition differs from competing propositions.	**New Guideline**: Show how your value proposition differs from competing propositions.
10	Is it more valuable to the customer than its cost (time and money)	**New Guideline**: Consider whether the overall value of the product to the customer is larger than the total cost to the customer in terms of time and money.

Table M4: Distribution Channel Design Guideline Additions/Improvements

P#	Comment	Solution
3	The design guidelines should address the need of innovation in the distribution channel and other components. If the customer need was for a new shirt, traditional distribution channels would be a retail store. Innovation would be an online store with the delivery happening through a self guided drone. The backward income statement will also not identify innovative and new distribution channels and may only focus on existing and known distribution channels.	**New High-Level guideline for each one of the nine building block components**: Generate potential innovation by: 1. Looking at the dominant Channels within the industry 2. Dissect the most important long held beliefs 3. Turning the underlying belief on its head 4. Sanity test the reframed belief 5. Translate the reframed belief into your business model.
6	What about the channels for your internal staff and suppliers of services.	**New Guideline**: Consider the distribution channels for staff and suppliers of service.
	As well as interactions of products and consumers and their respective channels.	**New Guideline**: Consider the product-channel and consumer-channel interactions.
8	Distribution in todays world is an integral and important part of the total customer experience. Designing the customer experience needs to come first.	**New Guideline**: Consider the influence of the customer experience.
9	Maybe reverse as extra guideline and state: Establish how a customer can engage with the company and obtain its value propositions.	**New Guideline**: Establish how a customer can engage with the company and obtain its value propositions.
10	What is the throughput or GP per customer; Pareto principle	Addressed in Participant 10's solution in Table K4.

Table M5: Customer Relationship Design Guideline Additions/Improvements

P#	Comment	Solution
4	The relationship should be all about the customer experience.	**New Guideline**: Design the customer relationships for the enhancement of the customer experience.
	Customers can influence the business by generating or producing their own buying and consumption experience.	**New Guideline**: Consider how can customers find it beneficial to influence various parts of the business system to co-create or co-produce their own unique purchase and consumption experience.
6	How do you funnel customers through less expensive systems and processes before engaging with the expensive ones like face to face.	**New Guideline**: Consider alternative less personal and expensive methods to engage with customers before engaging with more expensive ones (like face to face).
9	I think that the type of relationship that the company desires with its customers, should also be reflected or be aligned with the company values. So ensure that the customer relationship is in line with corporate values.	**New Guideline**: Ensure that the customer relationship is in line with corporate values.
10	Customers don't want to a hassling procurement experience. This should be avoided.	**New Guideline**: Consider what can be done to create and deliver a hassle-free purchase and consumption experience.

Table M6: Revenue Stream Design Guideline Additions/Improvements

P#	Comment	Solution
3	The design guidelines should cater for innovation in revenue streams as well as in each of the other blocks as well.	Addressed in Participant 3's solution in Table M4.
	Traditional revenue streams for example are between the business owner and the customer. Innovative revenue streams could be between the business owner and third parties that would like to get to your customer. An online retail store may have revenue streams from advertising to their customers so there is no revenue from the customer but rather from a third party.	Addressed in Participant 3's solution in Table M4.
		New Guideline: Consider non-traditional revenue streams such as revenue streams from third parties.
4	There are many revenue models and other business models that exist which should provide patterns for the analysis and study for this block and others.	**New Guideline for each one of the nine building block components**: Consider other business model patterns/archetypes.
6	Revenue iteration. How do you iterate revenue model over time?	Ensure iterations exist the around the profit formula when designing the proposed framework.

8	Value approach we use to map all possible value exchanges between stakeholders.	**New Guideline**: All possible value exchanges between all stakeholders in the business model should be looked at as possible additional revenue streams.
10	It's better to look at throughput or GP than revenue. I agree with the RS 2 set of guidelines.	**New Guideline**: Consider analysing the revenue streams in terms of gross profit instead of just revenue.
12	The question is rather how you generate revenues from VP. Further, in industries like financial services, the revenue types and lifecycle are highly varied from the two basics proposed, e.g. goal/milestone payments	**New Guideline**: Consider not only the types of revenue streams, but how revenue will be generated through for example the uniqueness of the value propositions or the customer experience and its influence on the pricing decision (how to price the value). Also consider the life cycle of the revenue stream.

Table M7: Key Resource Design Guideline Additions/Improvements

P#	Comment	Solution
6	Resource attraction and retention strategy.	**New Guideline**: Consider what is required in order to attract and retain key resources.
7	Could add additional sources regarding selecting strategic partnerships as there is a lot of literature on best practices of partnerships.	See solution for Participant 9 in Table K9: Identify and consider what additional value the Key Partners can bring to each business model building block.
9	What is important in this block is what resources are unique for your company and make you different from competition. The strategic make or buy decisions should be reflected in this block. I would expect a guideline on that aspect.	**New Guideline**: Consider how Key Resources can be made unique and distinct from the competition. **New Guideline**: Consider which Key resources can be internally produced and which must be bought.

Table M8: Key Activity Design Guideline Additions/Improvements

P#	Comment	Solution
4	What are the value creation processes and what are the supporting processes?	**New Guideline**: Identify the value creation processes and their related supporting processes.
6	The maturity at which activities are delivered and cost to the organisation. For me it is not just about doing the activities but at what level of efficiency.	**New Guideline**: Consider the maturity, cost and efficiency of the Key Activities.
9	Show which activities can be done better by partners. Only those activities that you're best in as a company, are key activities.	See solution for Participant 9 in Table L9: Identify and consider what additional value the Key Partners can bring to each business model building block.

Table M9: Key Partnership Design Guideline Additions/Improvements

P#	Comment	Solution
10	Partnerships work best when companies have similar cultures. Therefore consider the following additional guidelines: - Identify what value partners bring to the company. - Identify the required characteristics/core values of a business partner.	See solution for Participant 9 in Table L9: Identify and consider what additional value the Key Partners can bring to each business model building block.
		New Guideline: Consider whether the characteristics and core values of the Key Partnerships are compatible with the new business model.
	Also partners can have a wide ranging affect. Consider their influence on the other business model blocks.	See solution for Participant 9 in Table L9: Identify and consider what additional value the Key Partners can bring to each business model building block.

Table M10: Cost Structure Design Guideline Additions/Improvements

Participant	Comment	Solution
10	I would add a guideline on the characteristics of cost structures and show if costs are fixed or variable. Also if costs are financial or non-financial should be made clear. This is especially important for NGO's, humanitarian organisations etc.	**New Guideline**: Define whether costs are fixed or variable.
		New Guideline: Define whether costs are financial or non-financial.

Appendix N

Appendix N provides the second design guideline survey's invitation email in Section N.1 and feedback and summary document in section N.2.

N.1 Delphi Round 2 Invitation Email

Dear Participant.

Thank you for completing the previous business model design guideline survey. The results were analysed and it was found that consensus was not satisfactorily reached.

Therefore I would please like to invite you to participate in a follow-up and second validation round.

The second survey is **considerably** shorter than the first:

- Instead of two weeks for completion, you will have three weeks.
- Instead of twelve sections there are only eleven.
- Instead of four questions per component, there are only two.

Please find attached a feedback summary document which must be read through before starting the actual second survey.

The second survey can be accessed through the following link:
https://docs.google.com/forms/d/1LV8dnj13zIxUEz_thYDaOUt51k3B4KaAo5TTMiearGQ/edit

The final date for hand in is the 17th of July 2017. Reminders will be sent after a week and a half and once again a couple of days before the final date.

If you would like to receive the summary document from the first round please send me an email and I will happily send it to you again.

Thank you for your valuable time. Your participation would be greatly appreciated.

Kind Regards.
Wouter Kühn.

CFA - Passed Level 1
B.Eng. - Mechanical Engineering
M.Eng. - Engineering Management - Business Model Innovation [Student]

INDUSTRIAL ENGINEERING
STELLENBOSCH UNIVERSITY

N.2 Delphi Round 2 Feedback and Summary Document

Business Model Design Guideline Validation Round 2

Feedback Summary Document for Participant 1

by

Wouter J. Kühn

Department of Industrial Engineering, University of Stellenbosch,

Private Bag X1, Matieland 7602, South Africa.

Supervisor: Dr. L. Louw

1. Introduction

This document serves to give sufficient feedback to the participant in order to complete the second online validation questionnaire.

The validation questionnaire aims to validate and investigate further through a second Delphi round possible design guidelines for the building blocks found within a business model. Appropriate adjustments per component were made by subjectively interpreting all the expert feedback and then converting this feedback into new or adjusted design guidelines.

It is vitally important that the entire document is read through and fully understood by the participant. Any queries can be directed to Wouter Kühn at 17171830@sun.ac.za or (+27) 768339235. Only once you as the participant have fully understood this summary document with no related queries, may the validation questionnaire be completed.

This summary document describes the structural changes made to the survey in Section 2. The prominent opinions and problem areas of round one are highlighted in Section 2. Section 3 illustrates the position of your feedback (Participant 1) versus the rest of the participant group.

2. Structural Survey Changes

Two structural change occurred in the survey in order to make it shorter and quicker to finish.

Since the researcher already contains the personal background information of the participant, this whole section has been deleted.

Instead of 4 questions it has been reduced to 2 questions per component. This is due to the removal of 3 questions concerning the mistake and correction of the guidelines. These questions have been condensed into the following one question: "*If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.*"

The colour coding scheme for the guidelines that have remained unchanged, altered or newly generated can be seen in Table 1 below.

Table N1: Colour coding for an unchanged, altered and new guideline.

Unchanged Round 1 Guideline
Altered Round 1 Guideline
Newly Generated Guideline to be included in Round 2

2. Round One Feedback Summary

This section briefly summarises the main comments and problem areas of round one.

Main problem areas and solutions:

1. **Backward Income Statement:** Biggest survey issue. Many of the experts did not agree with backward income statement being used as an identification tool. The general consensus was that it should be used after the design process for evaluation and validation purposes instead.
    a. Solution – High-Level Phase Guideline**:** Use the backward income statement within the Revenue Stream and Cost Structure components in order to recognise and validate the designed business model's components and evaluate their financial feasibility.

2. **Component Innovation:** Comments emerged on the lack of generation of innovation within the components of the business model.
    a. Solution – Each of the nine business model components: Execute the well-known Five Step Innovation process (seen in the Figure 1 below) on a component level in order to generate potential innovation.

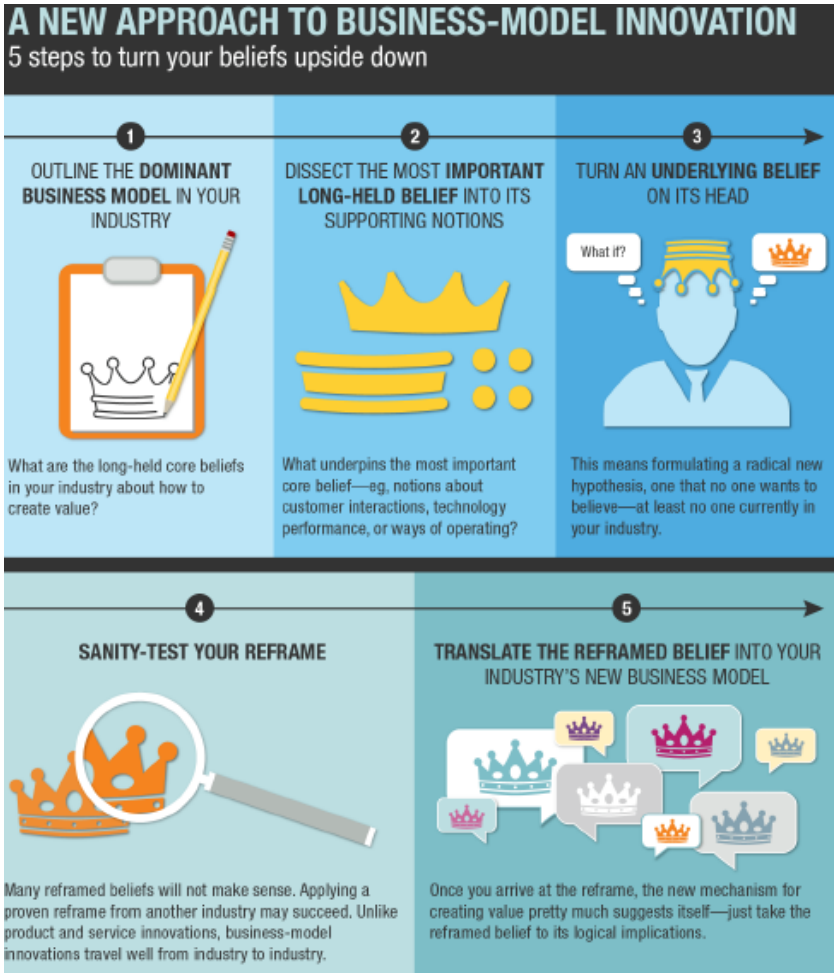


Figure N1: Five step BMI process

3. **Business Model Innovation (BMI) flexibility**: It was stated that the flexibility of the design process and guidelines should be emphasized.
    a. Solution- Adjusted High-Level Phase Guideline**:** "Utilise the mobilise, identify, understand, design, assess, implement, test, scale, manage and adjust stages, *which is flexible in nature and does not have to be followed in a strict linear fashion."*
    b. Solution: The design guidelines are not rigid but *flexible in nature and does not have to be followed in a structured fashion.* – No Guideline was added but this was included in the survey introduction.

4. **Business Model Patterns/Archetypes:** Comments were made that other business model patterns/archetypes should be considered within each business model component to assist in the desing process.
    a. Solution – Each of the nine business model components: Consider other business model patterns/archetypes.

5. **Value**: Feedback was given in various business model components regarding the concept of value.
    a. Solution : Extra value orientated guidelines were generated in the following components: High-Level, Value Proposition, Key Partnerships, Customer Relationships, Revenue Streams, Key Activities and Key Partnerships.

6. **Key Partners**: Participant comments were obtained stating that Key Partners should be considered in specific and all business model building blocks.
    a. Solution – New Key Partners Guideline: Identify and consider what additional value the Key Partners can bring to each business model building block.

7. Finally the following components in particular did not convincingly pass the consensus analysis of the first round: Distribution Channels, Key Activities, Key Resources and Key Partnerships.

3. Relative position to the group of participants

This page aims to inform you of your relative position to the rest of the group for each of the ten categories from round one. Table N2 below illustrates the Likert scale answers for each participant.

You are Participant 1, as highlighted in pink in Table N2 below.

Table N2: Round one Likert scale answers

	High Level	Customer Segment	Value Proposition	Distribution Channels	Customer Relationships	Revenue Streams	Key Resources	Key Activities	Key Partnerships	Cost Structure
Participant 1	3	3	3	4	3	4	4	3	4	4
Participant 2	4	4	4	4	4	4	5	5	5	4
Participant 3	5	5	4	2	5	4	2	2	2	4
Participant 4	4	5	5	5	5	5	5	5	5	5
Participant 5	4	4	4	4	4	4	4	4	4	4
Participant 6	4	4	4	2	4	4	4	4	5	3
Participant 7	4	4	4	4	4	4	4	4	4	4
Participant 8	4	4	4	3	4	3	3	3	3	3
Participant 9	4	4	4	2	4	4	2	2	2	2
Participant 10	4	4	2	3	4	4	4	4	4	4
Participant 11	5	5	5	5	5	5	5	5	5	5
Participant 12	4	4	4	1	4	4	2	2	2	2

Appendix O

Appendix O contains the second design guideline questionnaire as was seen by the participants on Google Forms.

1. Business Model Building Block 2nd Design Guideline Validation

Thank you for agreeing to participate in the second round of the business model design guideline validation process. Just to refresh your memory, this validation process centers on a thesis topic called: A Business Model Innovation Framework for Capturing White Space Opportunities.

This questionnaire aims to validate and investigate further through a second validation round, using the Delphi approach, possible design guidelines for the building blocks found within a business model.

Please make sure that you have read through the summary material that was previously emailed to you.

The research is conducted in accordance with the Stellenbosch University's Framework Policy for the Assurance and Promotion of Ethically Accountable Research. The participant may gladly ask about any questions regarding this matter for further clarification.

Please note that you as the participant will be assigned an identification number to guarantee your personal details remain anonymous within the thesis document itself.

Please remember that your participation is completely voluntary and that you are fully allowed to stop and leave the validation process at any point in time. Before completing the survey, if there are there any circumstances, concepts or aspects of any type that requires further clarification, please contact the investigator at 17171830@sun.ac.za or (+27)768339235.

The survey questions within the following sections must please be completed in sufficient detail and to the best of your knowledge. The investigator urges to write in much more detail than required rather than too little.

The survey uses the Likert Scale (5. Strongly Agree to 1. Strongly Disagree) where necessary. It is compulsory to elaborate on your answer choice if "Undecided", "Disagree" or "Strongly Disagree" is ever chosen.

Please remember that the questionnaire must be completed by the 17th of July 2017.

Please Note: The design guidelines are not rigid but instead flexible and generic in nature which do not have to be followed in a structured fashion.

Only once you as the participant have read through and understood the above, and have understood the summary material with no related queries, may the questionnaire be completed.

1. **Email address** *

2. High Level Design Guideline Validation

Section two aims to validate and investigate further possible High Level business model design guidelines.

High Level Design Guideline Definition: A generic design guideline that applies to the entire business model design process and which is not limited to a specific design application, situation or building block.

Table 1: High Level (HL) Design Guidelines

#	Design Guidelines
$HL1_2$	Align the business's strategy with the design process in order to obtain a business model that will possess a sustainable competitive advantage.
$HL2_2$	Utilise the mobilise, identify, understand, design, assess, implement, test, learn, iterate and adjust cycle, *which is flexible in nature and does not have to be followed in a strict linear fashion.*
$HL3_2$	Obtain a good understanding of a business model before commencing with the BMI process.
$HL4_2$	Ensure the business model design process is aligned with the mission and vision of the company.
$HL5_2$	Consider the value creation potential of the new business model by calculating its NPV for example.
$HL6_2$	Use the backward income statement within the Revenue Stream and Cost Structure components in order to recognise and validate the other designed business model building blocks and evaluate their financial feasibility.
$HL7_2$	Generate potential innovation in every building block by: 1. Looking at the dominant Channels within the industry 2. Dissect the most important long held beliefs 3. Turning the underlying belief on its head 4. Sanity test the reframed belief 5. Translate the reframed belief into your business model
$HL8_2$	Consider other business model patterns/archetypes in every building block.

2. Do you agree or disagree with the High Level design guidelines shown in the above table?
Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

3. If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.

3. Customer Segments

Section three aims to validate and investigate further possible design guidelines for the Customer Segments business model building block.

Table 2: Customer Segment (CuSe) Design Guidelines

#	Design Guidelines
$CuSe1_2$	Identify the customer's Job to be Done.
$CuSe2_2$	Define who the business is creating value for.
$CuSe3_2$	Group customers into separate segments with the following criteria: • Customer needs that require and justify a distinct offer. • Customers must be reached through different distribution channels. • Customers require different types of relationships. • Customers have substantial different profitability's. • Customers are willing to pay for different aspects of the value offer. • Common needs, common behaviours or other attributes.
$CuSe4_2$	Identify which customers will be served and which will not be served.
$CuSe5_2$	Define the most important customers *that are in line with the future business model*.
$CuSe6_2$	Consider current and future customer needs, pains and gains associated with the customers Job to be Done.
$CuSe7_2$	Define the business model's aspiration or goal for each customer segment.
$CuSe8_2$	Calculate the gross profit per customer segment and then apply the Pareto principle (80/20 rule) in order to target 20% of the customers that generate 80% of total financial value.
$CuSe9_2$	Identify and take into account the hiring criteria customers use when they choose a solution.
$CuSe10_2$	Engage with customers in order to gain a better customer understanding. Consider their businesses, life, worries and needs.

4. Do you agree or disagree with the Customer Segment design guidelines shown in the above table?

Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

5. If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.

_____

4. Value Proposition

Section four aims to validate and investigate further possible design guidelines for the Value Proposition business model building block.

Table 3: Value Proposition (VP) Design Guidelines

#	Design Guidelines
$VP1_2$	Each Value Proposition should consist of a selected bundle of products and/or services that caters to the requirements of a specific Customer Segment
$VP2_2$	Consider the barriers that limit customers from getting a job done: wealth, access, skill and time.
$VP3_2$	Ensure the Value Proposition *is designed with user-centred design thinking - developed in such a way that it* fulfils the identified customer's *functional, emotional and social* Job to be Done, *need or problem.*
$VP4_2$	Value Proposition should be aligned to your customer's value perception, desires/aspirations, experience, pains and gains.
$VP5_2$	Identify value along the complete customer journey, from purchase, delivery, use, supplements, maintenance and disposal.
$VP6_2$	Consider the following types of value the business model can generate when designing the value proposition: Functional, experiential/hedonic, symbolic/expressive, cost/sacrifice.
$VP7_2$	Ensure the business model's value creation strategy is comprised of the following types of value: Performance, pricing, relationship and co-creation.
$VP8_2$	Consider whether the overall value of the product to the customer is larger than the total cost to the customer (sacrifice value such as time and money).
$VP9_2$	Define the key and complementary offerings that will assist the customers to get their job done.
VP10	Consider what additional products and services can be offered that customers have not explicitly asked for.
$VP11_2$	Show how your Value Proposition differs from competing Value Propositions.

6. Do you agree or disagree with the Value Proposition design guidelines shown in the above table?

Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

7. If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.

5. Distribution Channels

Section five aims to validate and investigate further possible design guidelines for the Distribution Channels business model building block.

Table 4: Distribution Channel Design Guidelines

#	Design Guidelines
$DC1_2$	Establish how the Value Proposition will reach each Customer Segment.
$DC2_2$	When selecting Distribution channels, consider how the Distribution Channel will deliver the Value proposition, engage customers, as well as support customers afterwards.
$DC3_2$	Consider the distribution channels for staff and suppliers of service
$DC4_2$	Consider the influence of the customer experience.
$DC5_2$	Establish how a customer can engage with the company and obtain its Value Propositions.
$DC6_2$	Consider the following when selecting Distribution Channels: • Number of Customer Segments • Investment required. • Whether the product is standard across the Customer Segments. • Amount of control required. • How long a healthy relationship will take to be established with the distributor as well as the length of the relationship. • Factors which contribute to the flexibility of the channel.
$DC7_2$	Consider the following channel phases: 1) Awareness, 2) Evaluation, 3) Purchase, 4) Delivery, 5) After Sales.
$DC8_2$	Consider the following two types of channels: 1) Own/Direct Channel 2) Partner/Indirect Channel.
$DC9_2$	Consider the product-channel and consumer-channel interactions.

8. **Do you agree or disagree with the Distribution Channel design guidelines shown in the above table?**
Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

9. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

6. Customer Relationships

Section six aims to validate and investigate further possible design guidelines for the Customer Relationships business model building block.

Table 5: Customer Relationship (CR) Design Guidelines

#	Design Guidelines
$CR1_2$	Define what type of relationship does each of the Customer Segments expect the business to establish and maintain with them.
$CR2_2$	Establish how the Customer Relationships are integrated with the rest of the business model.
$CR3_2$	Consider what can be done to create and deliver a hassle-free purchase and consumption experience.
$CR4_2$	Consider how can customers find it beneficial to influence various parts of the business system to co-create or co-produce their own unique purchase and consumption experience.
$CR5_2$	Obtain an angle on customer intimacy by obtaining a customer's perspective.
$CR6_2$	Consider how customer expectations can be exceeded.
$CR7_2$	Design the Customer Relationships for the enhancement of the customer experience.
$CR8_2$	Consider alternative less personal and expensive methods to engage with customers before engaging with more expensive ones (like face to face).
$CR9_2$	Ensure that the Customer Relationship is in line with corporate values.

10. **Do you agree or disagree with the Customer Relationship guidelines shown in the above table?**
Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

11. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

_____

_____

_____

_____

_____

7. Revenue Streams

Section seven aims to validate and investigate further possible design guidelines for the Revenue Streams business model building block.

Table 6: Revenue Stream (RS) Design Guidelines

#	Design Guidelines
$RS1_2$	Define what type or mix of revenue streams the business model will have, either: 1. Transactional revenues (one-time customer payments) 2. Recurring revenues (ongoing customer payments).
$RS2_2$	Define what the pricing mechanism each revenue stream will have, either: 1. Fixed Menu Pricing (predefined prices based on static variables) 2. Dynamic Pricing (Prices that change based on market conditions).
$RS3_2$	Consider how other additional supporting Revenue Streams can be generated from the delivery as well as support of the Value Proposition.
$RS4_2$	Consider the bundling of products and services in generating new revenue streams.
$RS5_2$	All possible value exchanges between all stakeholders in the business model should be looked at as possible additional revenue streams.
$RS6_2$	Consider non-traditional revenue streams such as revenue streams from third parties
$RS7_2$	Consider analysing the revenue streams in terms of gross profit instead of just revenue.
$RS8_2$	Consider not only the types of revenue streams, but how revenue will be generated through for example the uniqueness of the value propositions or the customer experience and its influence on the pricing decision (how to price the value). Also consider the life cycle of the revenue stream.

12. **Do you agree or disagree with the Revenue Stream design guidelines shown in the above table?**
Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

13. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

8. Key Resources

Section eight aims to validate and investigate further possible design guidelines for the Key Resources business model building block.

Table 7: Key Resource (KR) Design Guidelines

#	Design Guidelines
$KR1_2$	Identify the required key resources for the value proposition, distribution channels, customer relationships and revenue streams and then categorise them into the following categories: • Physical (Manufacturing facilities, buildings, vehicles, equipment and machines, systems, distribution networks, technology, products) • Intellectual (Trademarks, information, patents, copyrights, branding, alliances and partnerships) • Human • Financial (Cash, credit channels, staff stock option pool, funding)
$KR2_2$	Consider what is required in order to attract and retain key resources.
$KR3_2$	Consider how Key Resources can be made unique and distinct from the competition.
$KR4_2$	Consider which Key resources can be internally produced and which must be bought.

14. Do you agree or disagree with the Key Resource design guidelines shown in the above table?

Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

15. If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.

9. Key Activities

Section nine aims to validate and investigate further possible design guidelines for the Key Activities business model building block.

Table 8: Key Activity (KA) Design Guidelines

#	Design Guidelines
$KA1_2$	Identify the key activities required for the value proposition, distribution channels, customer relationships and revenue streams and then categorise them into: 1. Primary Activities 2. Support Activities. *Choose then those activities that are core to the business model.*
$KA2_2$	Identify the value creation processes and their related supporting processes.
$KA3_2$	Consider the maturity, cost and efficiency of the Key Activities.

16. **Do you agree or disagree with the Key Activity design guidelines shown in the above table?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

17. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

10. Key Partnerships

Section ten aims to validate and investigate further possible design guidelines for the Key Partnerships business model building block.

Table 9: Key Partnerships (KP) Design Guidelines

#	**Design Guidelines**
$KP1_2$	Consider the following four types of partnerships to aid in the design process: 1. Strategic alliances between non-competitors. 2. Coopetition: Strategic partnerships between competitors. 3. Joint ventures to develop new businesses. 4. Buyer-supplier relationships to assure reliable supplies.
$KP2_2$	Define the purpose of the partnership - the set of value contributions desired from a partner
$KP3_2$	Define how you will create and deliver value to your partner (it needs to be a value exchange)
$KP4_2$	Consider whether the characteristics and core values of the Key Partnerships are compatible with the new business model.
$KP5_2$	Identify and consider what additional value the Key Partners can bring to each business model building block.

18. **Do you agree or disagree with the Key Partnership design guidelines shown in the above table?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

19. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

11. Cost Structure

Section eleven aims to validate and investigate further possible design guidelines for the Cost Structure business model building block.

Table 10: Cost Structure (CS) Design Guidelines

#	Design Guidelines
$CS1_2$	Define what balance the business model will have between the two extremes of having: 1. A Cost-Driven (minimisation of costs) Cost Structure 2. A Value-Driven (Value maximisation) Cost Structure.
$CS2_2$	Derive your cost streams from all the other business model building blocks.
$CS3_2$	Define whether costs are fixed or variable.
$CS4_2$	Define whether costs are financial or non-financial.

20. **Do you agree or disagree with the Cost Structure design guidelines shown in the above table?**

Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

21. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

Appendix P

Appendix P illustrates the increase in consensus of each design guideline category from the first to the second round.

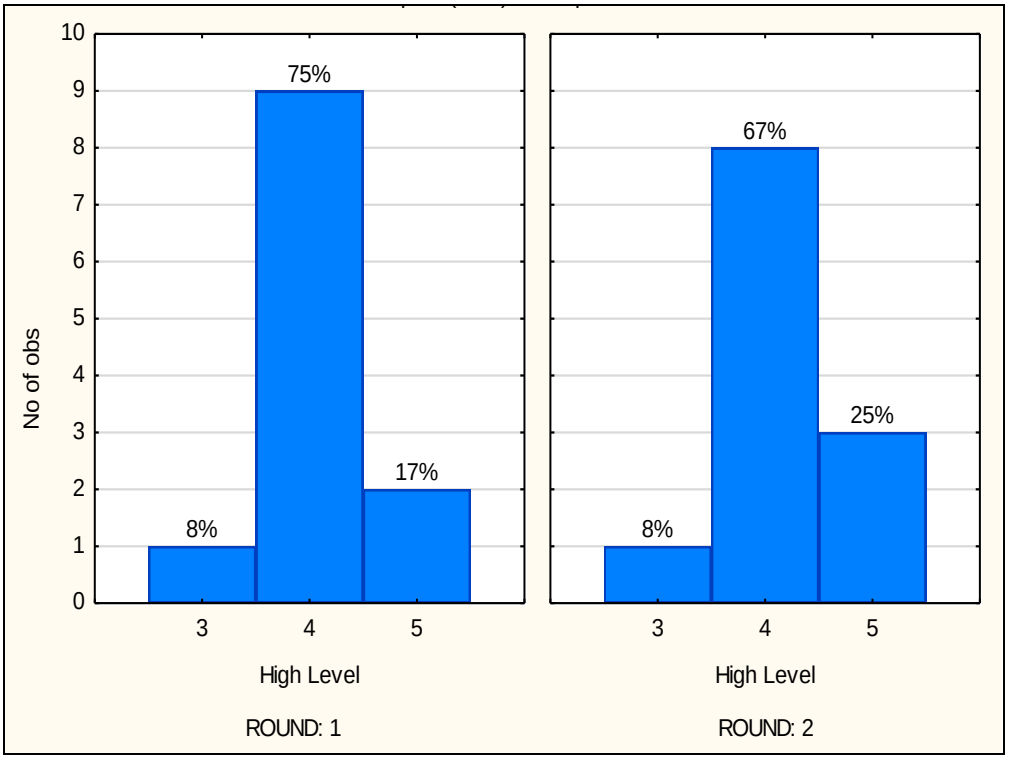


Figure P1: Participants High-Level Likert scale answers of round one and two

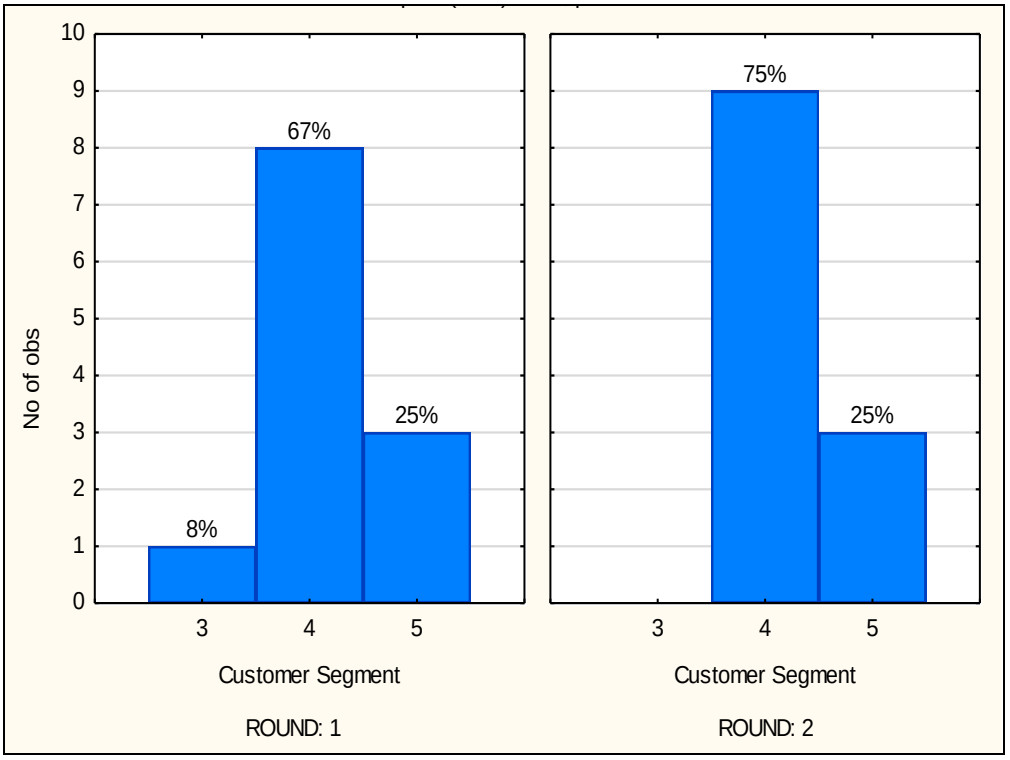


Figure P2: Participants Customer Segment Likert scale answers of round one and two

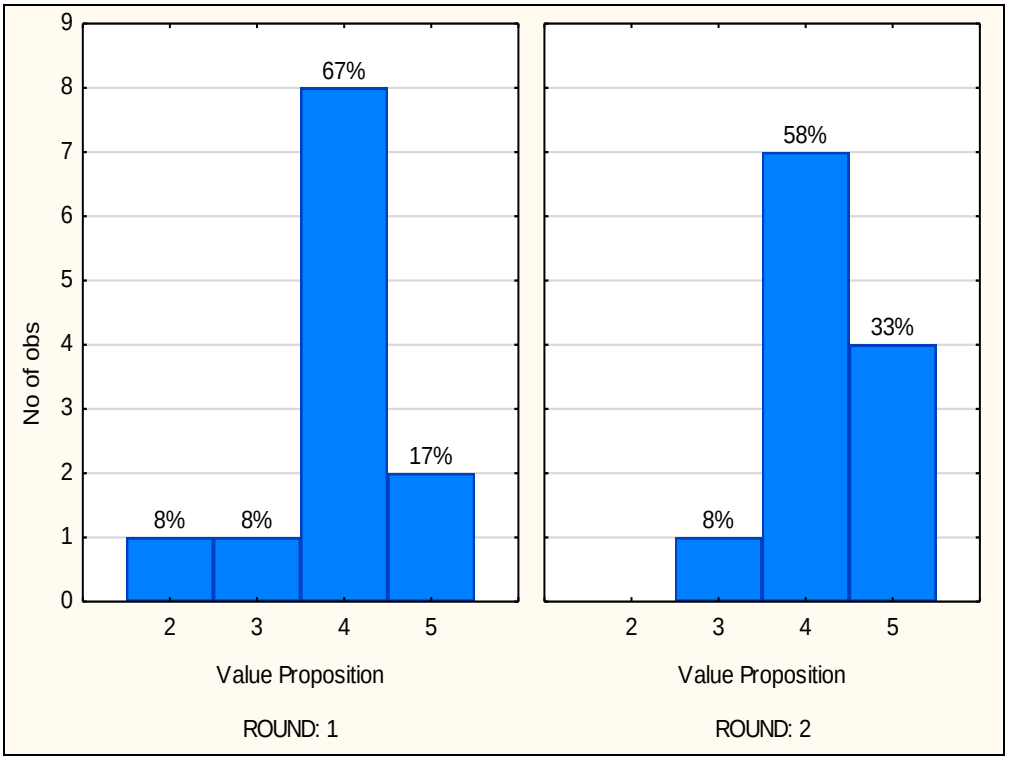


Figure P3: Participants Value Proposition Likert scale answers of round one and two

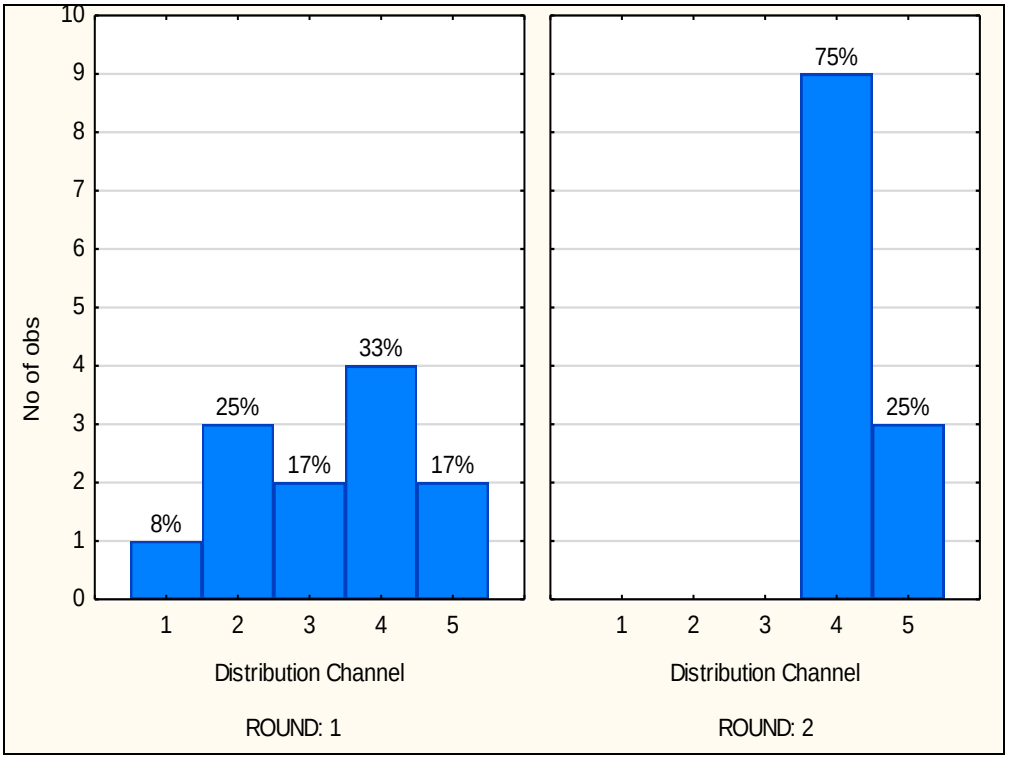


Figure P4: Participants Distribution Channel Likert scale answers of round one and two

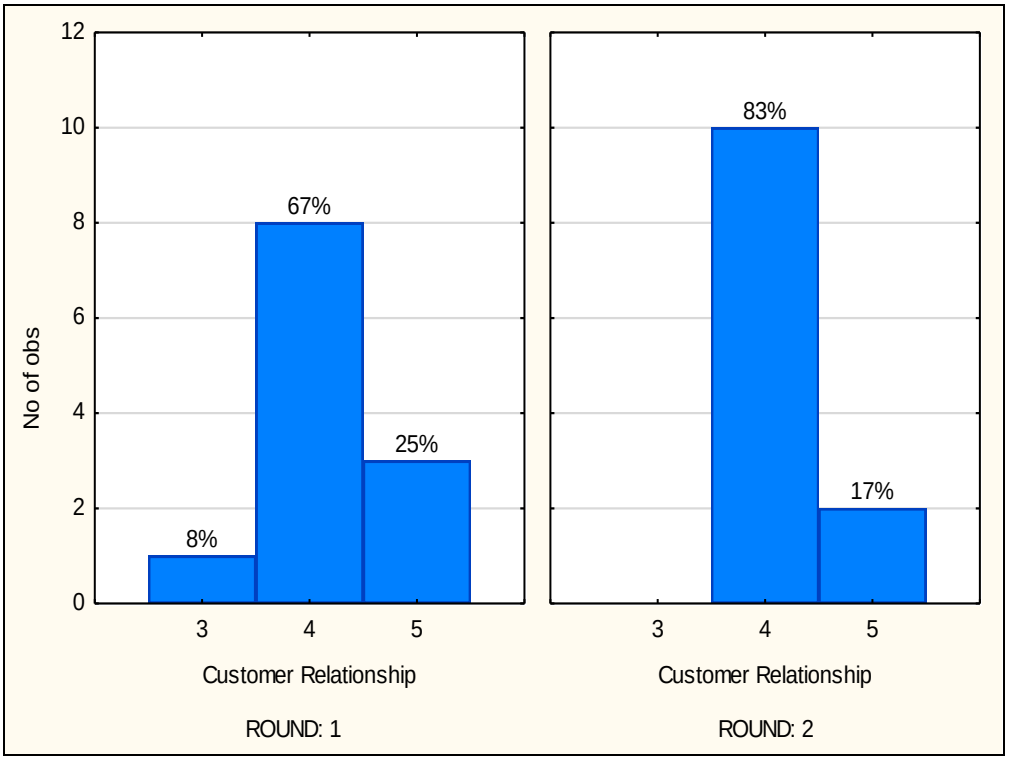


Figure P5: Participants Customer Relationship Likert scale answers of round one and two

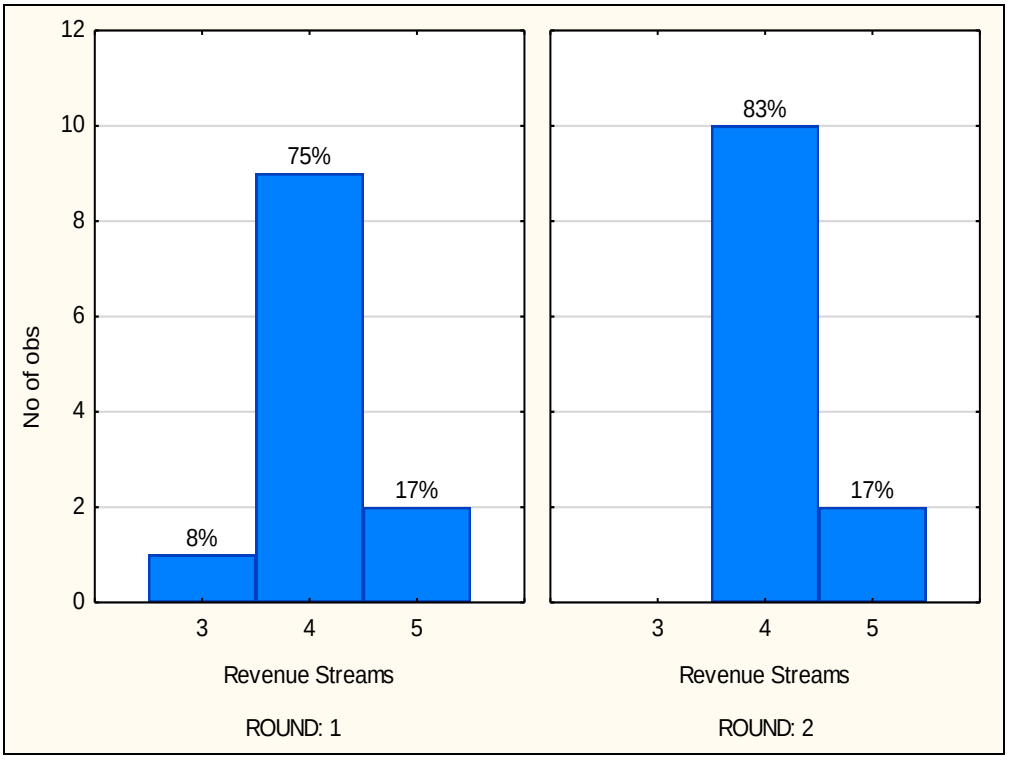


Figure P6: Participants Revenue Stream Likert scale answers of round one and two

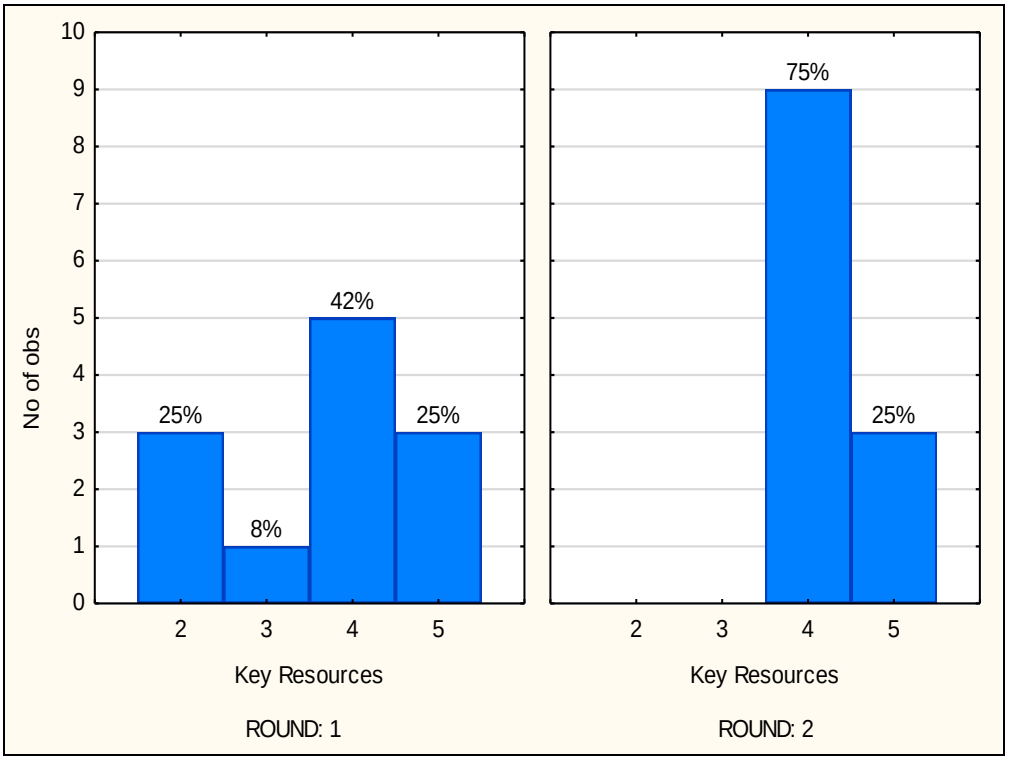


Figure P7: Participants Key Resource Likert scale answers of round one and two

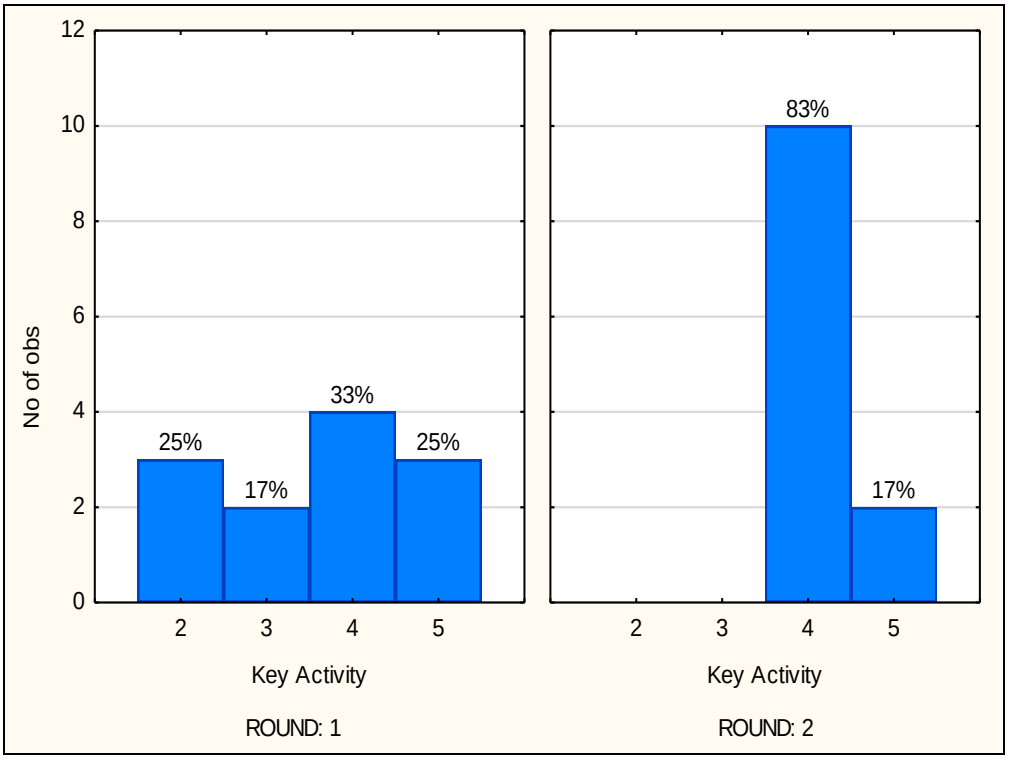


Figure P8: Participants Key Activity Likert scale answers of round one and two

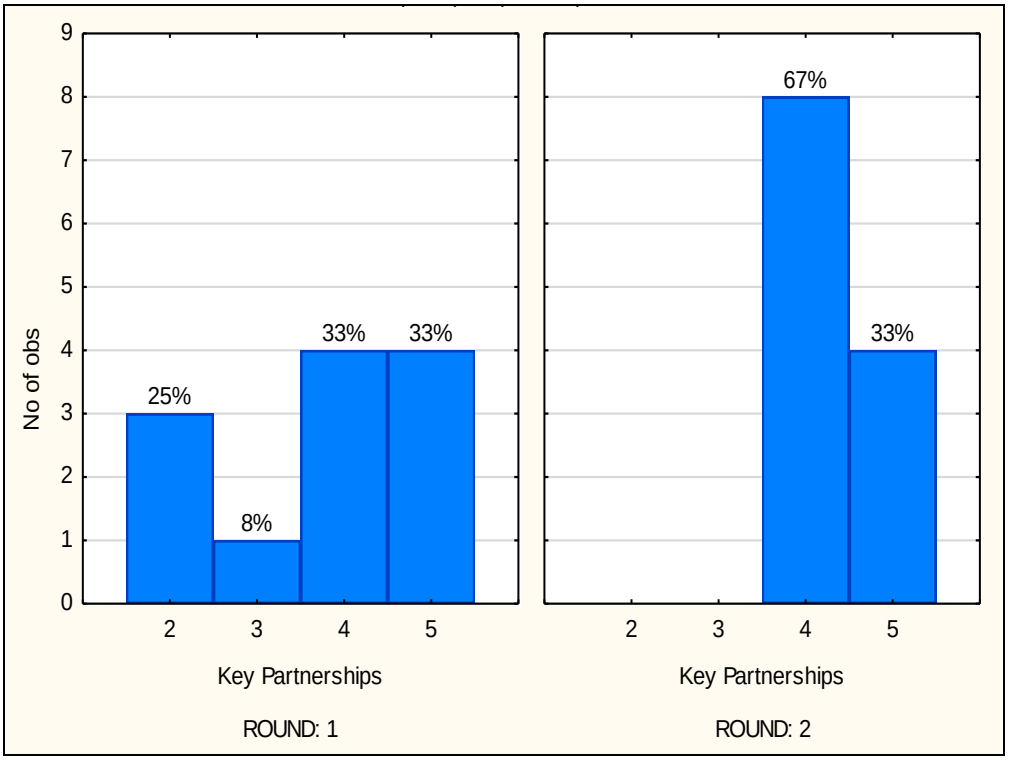


Figure P9: Participants Key Partnership Likert scale answers of round one and two

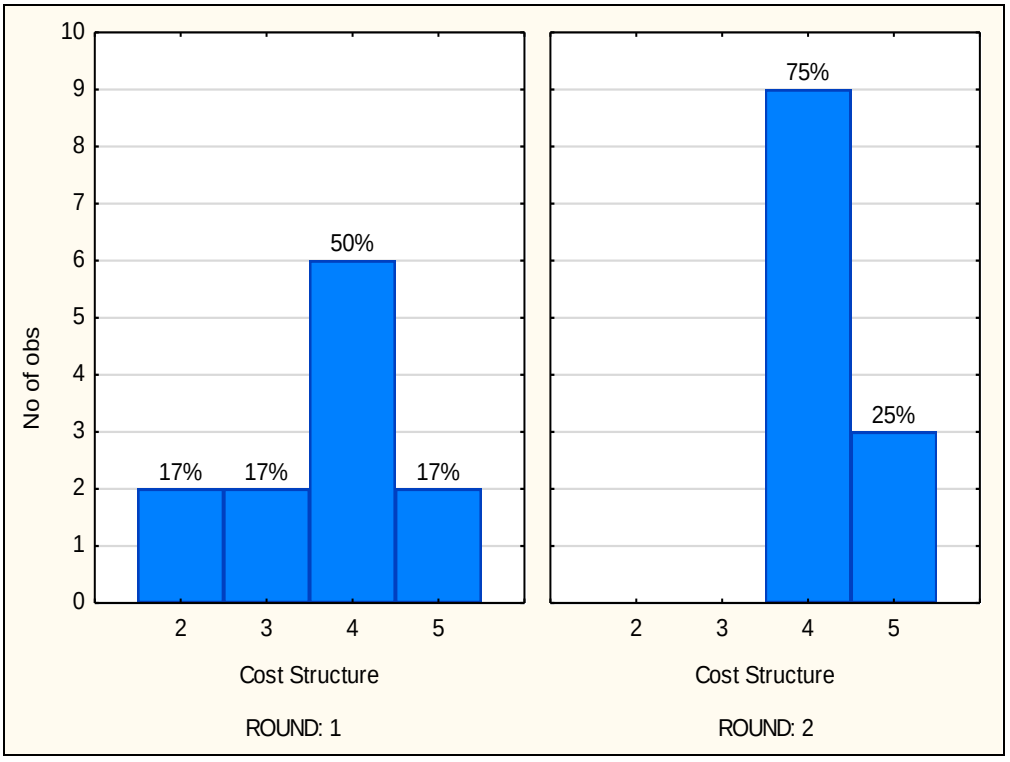


Figure P10: Participants Cost Structure Likert scale answers of round one and two

Appendix Q

Appendix Q provides the participant feedback received in the second design guideline survey as well as the suggested solutions for each feedback comment.

Table Q1: High-Level Design Guideline Delphi Round 2 Feedback

P#	Comment ("")	Solution
4	I agree with most items except NPV calculations. NPV calculations makes a lot of assumptions. If the new business model has many assumptions built into, a better approach is Discovery Driven Planning (using Reverse Income Statement)	**Alter Guideline HL5$_2$:** *Consider the value creation potential of the new business model not only from a financial perspective, but also a non-financial perspective (how value can be created for each of the different stakeholders, e.g. customers, the organisation, partners, etc).*
6	When considering all the information in the table it seems very generic and more like a shotgun approach of do everything and hope we add enough value with some of it.	Disregard. The guidelines are meant to be generic and not specific. This was explained in the summary document and survey introduction.

Table Q2: Customer Segment Design Guideline Delphi Round 2 Feedback

P#	Comment ("")	Solution
4	Use Job To Be Done and Outcome Driven Innovation approach (Refer to "What Customers Want: Using Outcome-Driven Innovation to Create Breakthrough Products and Services" by Anthony Ulwick) to identify unmet customer needs. Customers can then be segmented based on the jobs and outcomes (Factor Analysis and Cluster Analysis)	**Alter bullet point in Guideline CuSe3$_2$:** Group customers into separate segments with the following criteria: • Common needs *or jobs*, common behaviours or other attributes *such as outcomes (metrics used by customers to define the successful execution of a specific job).*

Table Q3: Value Proposition Design Guideline Delphi Round 2 Feedback

P#	Comment ("")	Solution
2	In total cost to the customer in VP8$_2$ consider money, time, inconvenience, training requirements, peer acceptance (or not), etc. Lots in addition to price.	**Make guideline clearer - Alter guideline VP8$_2$:** Consider whether the overall value of the product to the customer is larger than the total cost to the customer *[Total Cost/Sacrifice Value = Financial Costs (research, buying, obtaining, maintenance, switching costs) + Non-Financial Costs (emotional, social, psychological, relationship and time costs)]*.

Table Q4: Customer Relationship Design Guideline Delphi Round 2 Feedback

P#	Comment ("")	Solution
6	Consider how you can leverage communities and crowds to support your customer relationships. Similarly to how Facebook has approached the generations of content. This will also reduce your cost to serve.	**New Guideline:** Consider how you can leverage communities and crowds to support your customer relationships.

Table Q5: Revenue Stream Design Guideline Delphi Round 2 Feedback

P#	Comment ("")	Solution
4	Consider revenue models from various business model patterns ("The Business Model Navigator: 55 Models That Will Revolutionise Your Business" by Glassman et al.) while exploring ideas for revenue model	Disregard. Addressed in Guideline $RS10_2$: Consider other business model patterns/archetypes.
6	How can you generate alternative revenue lines using the data that you generate through core business	Disregard. Addressed in Guideline $RS3_2$: Consider how other additional supporting Revenue Streams can be generated from the delivery as well as support of the Value Proposition.
9	Consider also non-financial revenue streams that represent value like personal or societal benefits.	Disregard. Revenue streams are of a financial nature. This is more applicable to the value surrounding the Value Proposition. Addressed in Guidelines $VP5_2$, $VP6_2$ and $VP8_2$.

Table Q6: Key Resources Design Guideline Delphi Round 2 Feedback

P#	Comment ("")	Solution
6	Consider how do you develop key resources. The required skills is not always available in the market.	Disregard. Addressed in guideline $KR5_2$: Consider which Key resources can be internally produced and which must be bought.

Appendix R

Appendix R serves to propose possible approaches, methodologies, tools and processes that could be used and integrated into the proposed framework. All the tools that fall under the Blue Ocean Strategy and Customer-Centric New Product Development process is listed under Sections R.1 and R.2 respectively. Finally, Section R.3 lists all the other individual tools.

R.1 Blue Ocean Strategy Tools

Section R.1 presents various tools derived from the Blue Ocean Strategy, namely the strategic canvas, six paths framework and Buyer Utility Map.

R.1.1 Strategic Canvas

To generate a blue ocean strategy, Kim & Mauborgne (2017) came up with the strategy canvas. It is a tool that can be used to view the value curve over a series of value elements. The strategy canvas has two main functions. The first is to realise what is the current state of the market and industry positions. Secondly it pushes companies to change their value curve drastically to distinguish themselves from their competitors. A strategy canvas example can be seen below in Figure R1.

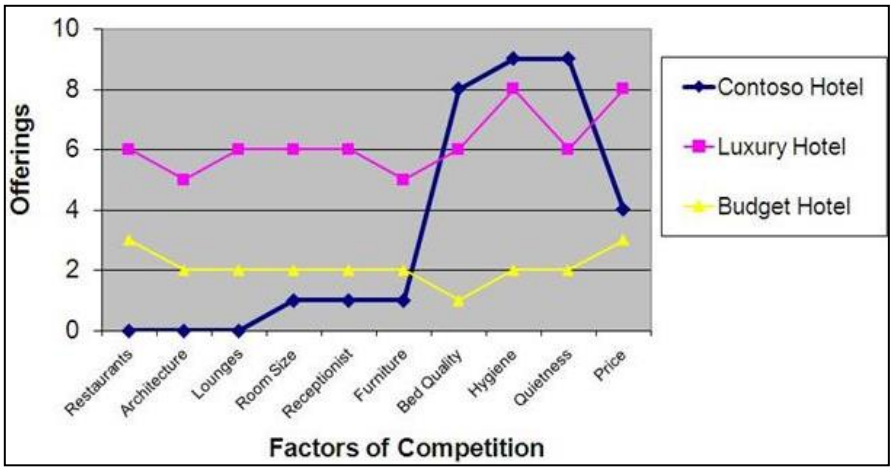


Figure R1: A generated strategy canvas for three different competing hotels (Kim & Mauborgne, 2017)

The horizontal axis lists all the factors the industry competes on. The vertical axis measures degree of performance of each competing factor as experienced by the customer.

R.1.2 Six Paths

The six paths framework analyses six diverse levels of a business and its market boundaries. This is done to generate a thinking process that challenges unoriginal assemblies and procedures (Kim & Mauborgne, 2017). The paths can be seen at the top of the following page in Table R1.

Table R1: Six paths framework

	Head-to-Head Competition	**Blue Ocean Strategy**
Industry	Focuses on rivals within its industry	Looks across alternative industries
Strategic Group	Focuses on competitive position within strategic group	Looks across strategic groups within industry
Buyer Group	Focuses on better serving the buyer group	Redefines the industry buyer group
Scope of Product or Service Offering	Focuses on maximising the value of the product and service offerings within the bounds of its industry	Looks across to complementary product and service offerings
Functional-emotional Orientation	Focuses on improving the price performance within the functional-emotional orientation of its industry	Rethinks the functional-emotional orientation of its industry
Time	Focuses on adapting to external trends as they occur	Participates in shaping external trends over time

(Source: Kim & Mauborgne, 2017)

R.1.3 Buyer Utility Map

The buyer utility map delivers a key understanding to the user regarding what client value is offered. It is a two-dimensional matrix through which old goods and services can be compared to new ones (Kim & Mauborgne, 2017). An example of a buyer utility map can be seen below in Figure R2.

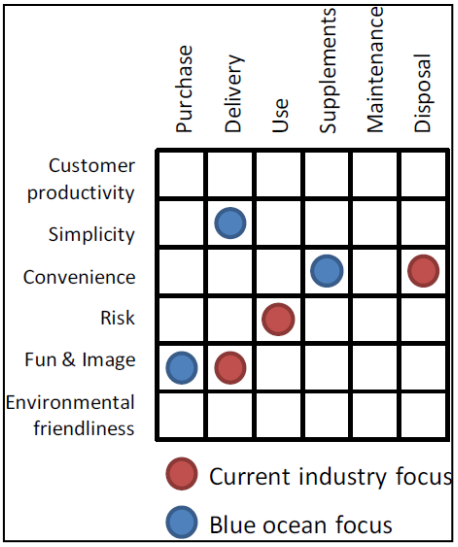


Figure R2: Buyer utility map
(Source: Kim & Mauborgne, 2017)

The horizontal axis of the matrix, buyer experience cycle, consists of six stages that the customer experiences while being involved in the product. The vertical axis, also known as utility levels, consists of another six levels which incorporates the diverse means in which utility can be offered to the client (Kim & Mauborgne, 2017). The buyer utility map can be used along with a customer market analysis and customer needs analysis to unlock whether certain client propositions does in fact exist as well as which hurdles should be eliminated to create a surplus of customer value (Kim & Mauborgne, 2017). The following section describes the tools within the Customer-Centric New Product Development framework.

R.2 Customer-Centric New Product Development Framework

This section involves an innovative approach and toolkit designed by Romero & Molina (2015) in which the customer is the centre focus to achieve new product development. The process will assist companies to listen to the voice of the customer as well as identify new added-value features while designing new goods or services. It is finally important to note that a toolkit is a set of resources that is used as conditionally needed from the designer (Romero & Molina, 2015). The customer-centric model can be seen below in Figure R3.

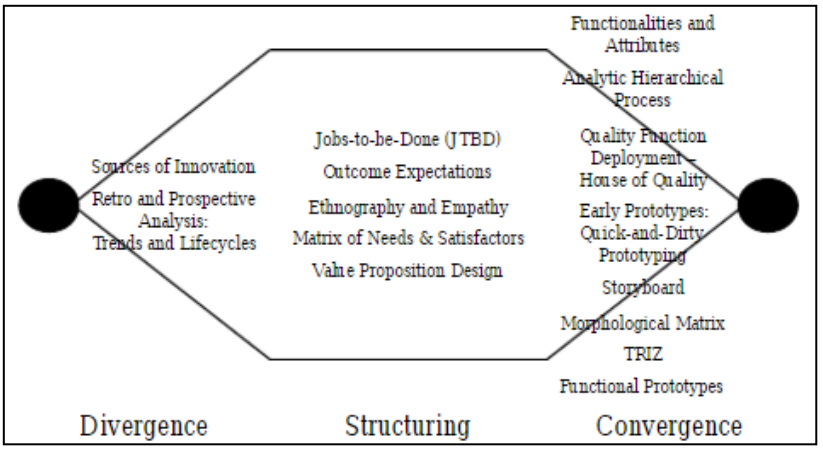


Figure R3: Customer-centric model for new product development
(Source: Romero & Molina, 2015)

The Divergence Phase is a process which involves the creation of ideas by traveling through all possibilities from different perspectives to find various solutions to address the customer's needs. Secondly, the Structuring Phase follows which entails the procedures of structuring, categorising and evaluating the identified customer problems and market opportunities, in which a greater understanding is developed as well as designing a striking Value Proposition. Finally, the Convergence Phase consists of the methods that will assist in the decision-making process. This phase is based on knowledge, logic and various engineering methods to end up with the finest solution possible to address the market opportunities and customer needs (Romero & Molina, 2015). The Customer-Centric Innovation Process can be seen below in in Figure R4.

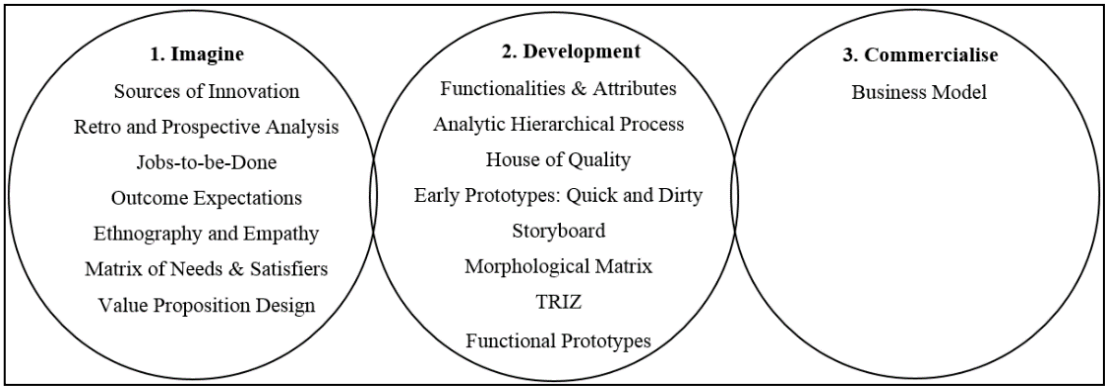


Figure R.4: Customer-Centric Innovation Process
(Source: Romero & Molina, 2015)

R.2.1 Divergent Phase: Imagine

Section R.2.1 elaborates on all the components in the Customer-Centric Model found within the Divergence Phase.

R.2.1.1 Sources of innovation

The sources of innovation consist of the seven sources of opportunity innovation as was described in section 3.3.1.2.

R.2.1.2 Retro and prospective analysis: Trends & Lifecycles

More is required to achieve success than only identifying innovative opportunities. This section looks to aid in the search for innovative opportunities as well as provide insight into the possible challenges that may be encountered (Romero & Molina, 2015).

Consider the prospective view, a method to new product development which considers consumption, social and technological trends to pursue possible innovative opportunities by following any one the three routes as suggested by Jaruzelski *et al*. (2014) below:

1. Need Seekers: A great deal of effort is made by a company to gain an in depth understanding of the needs of a customer after which they obtain an advantage by being the first ones to address the unattended customer needs through a new product or service.
2. Market Readers: These are fast second followers who observe the market and generate value by performing incremental innovations on current products or services.
3. Tech Drivers: These companies advance current products and services based on the capability of the technology rather than on focusing what the customers want.

According to Jaruzelski (2014) an improved understanding of customer behavioural needs and desires are gained through an analysis of consumption trends. Additionally, it will unlock why a customer might have a certain need at a specific moment that motivates that customer to obtain a solution (Romero & Molina, 2015). Figure R5 on the following page assists this process in discovering these *expectation gaps* between the customers actual want and that which they do not currently possess - therefore inspiring innovation potential.

The study of various social megatrends assists in obtaining a feeling in which direction a potential customer market segment might go due to social, commercial, governmental and ecological forces which can influence a vast range of actions, procedures and opinions of the clients that belong to it (Romero & Molina, 2015). By understanding these trends along with the consumption trends, it is possible to categorise solutions for a market segment. Additionally, a reconsideration of technological megatrends can drive the technological selection platform in the right direction. These trends will offer a solid structure from which new goods and services can then be advanced.

Lifecycles are an additional vital element entailed within new product development. The lifecycle in this model define the stages within the lifespan of a product, industry or technology. A generic lifecycle example can be seen in Figure R6 on the following page.

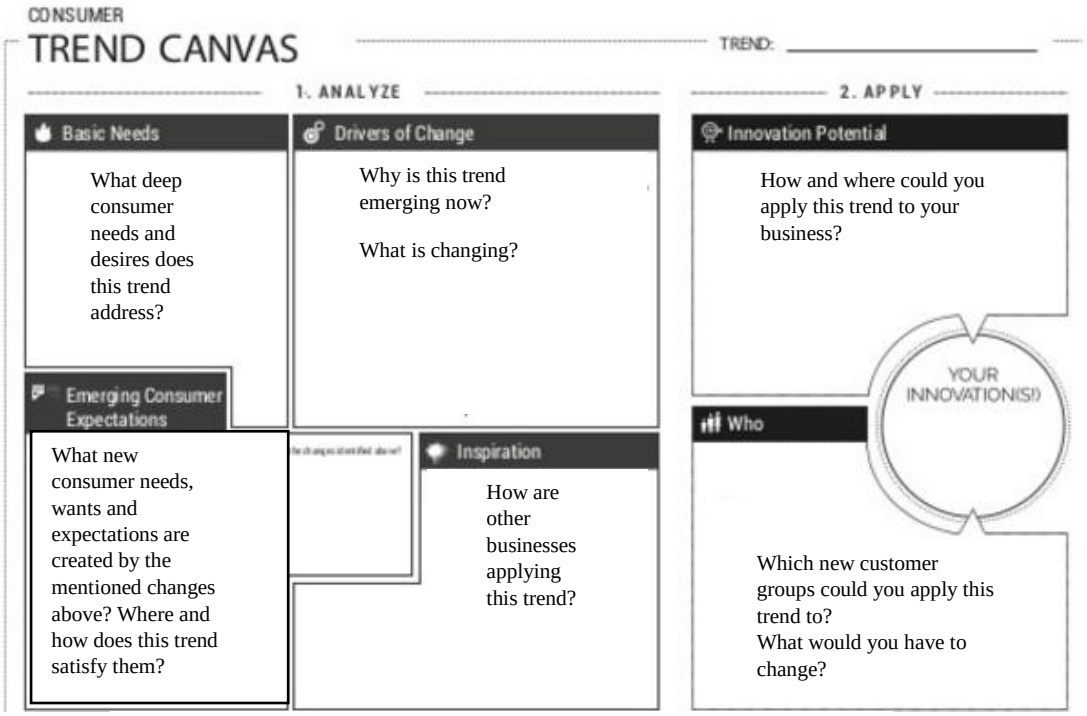


Figure R5: Consumer Trend Canvas
(Source: Romero & Molina, 2015)

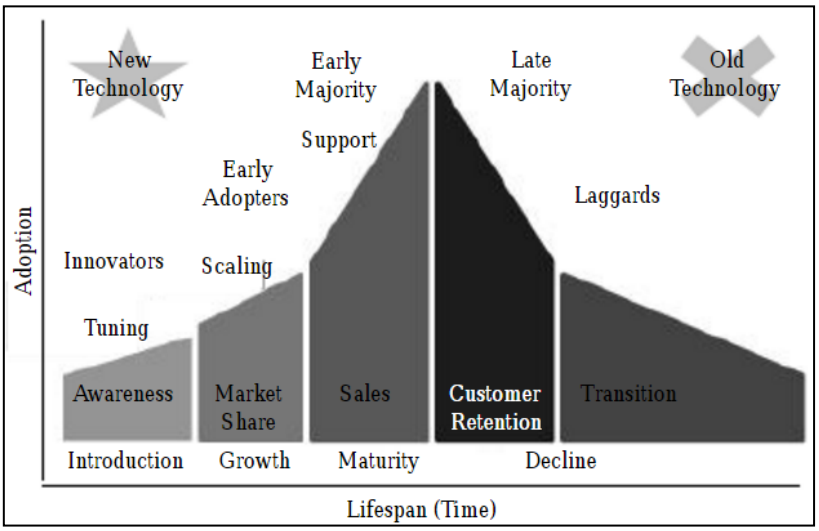


Figure R6: Generic Lifecycle
(Source: Romero & Molina, 2015)

When companies make use of these lifecycles it allows them to forecast return on investments (ROI) as well as internal rate of return (IRR) throughout the development of their new (Romero & Molina, 2015). Therefore, depending on the stage that the good, industry or technology is at, it is bound to influence the new product development strategic plan. The list starting below which spans over to the following page, as described by Romero & Molina (2015), explain the product, industry and technology lifecycles in terms of the generic lifecycle.

- Within a product lifecycle, advertising and promoting the product or service is the focus during the introduction stage to ensure the customer needs are answered more effectively than the competitors. The growth stage entails the marketing and sales departments to penetrate and expand the small customer market even further as well as

to make the concluding changes to better reflect the customer needs. The centre of concentration during the early maturity stage is to increase the profit margins for the now established good or service within the industry to cash back the estimated IRR on the new product development venture by pursuing the laggards in the market. The late majority stage involves incremental innovations to lengthen the lifecycle of the good or service, or the Value Proposition can be self-disrupted with a new drastic innovation to retain the market share achieved by the brand. Finally, the good and service is retired to avoid losses within the decline stage.

- Within a market or industry lifecycle, undiscovered or badly attended initial customer needs in an emerging market segment are identified. The segment is then analysed to quantify its value. If it turns out to be profitable, the customers will have to be convinced by the Value Proposition. The growth stage entails that the identified customers having to recognise and agree with the presented Value Proposition as well as being prepared to pay for it so that a ROI can be achieved for the new product development venture. Focus is given to increase the sales to achieve profitable volumes within the early maturity stage to achieve the estimated IRR. Finally, during the late maturity or early decline stage, customer engagement is required to be maintained with new and transformed goods or services.

- The introduction stage within a technology lifecycle entails actions that focuses on possible benefits and costs associated with embryonic technologies that will serve as a structure for new product and service development. If the potential benefits do outweigh the adopted costs, activities become focused on possible technology prototype evaluations that will serve as the mentioned structure during the growth stage. The maturity stage involves these technologies being implemented as a structure and then used to gain competitive advantages. Before the decline stage, structured technologies should be assessed for possible replacements by newer technologies that can be used to increase customer satisfaction.

These lifecycle models can assist companies in understanding the dimensional maturity of their selected product, industry or structured technology to prepare a business case. Ground-breaking alterations lead to excellent innovative opportunities for companies. Therefore, a good understanding of trends and lifecycles as a starting tool is required to identify future opportunities (Romero & Molina, 2015).

R.2.2 Structuring Phase: Development

This section discusses the tools and methods involved in the Structuring Phase of the customer-centric model.

R.2.2.1 Jobs to be done (JTBD)

The jobs to be done technique is defined, broken down and then divided into five steps in the following sub-headings.

Definition

Jobs to be done (JTBD) is a ground-breaking technique used to assist companies to innovate and develop better solutions. It is a high-level concept for which clients purchase goods, solutions or services. This concept assists the company in understanding that clients rent different solutions at different periods of time to be able to get a broad spectrum of jobs completed; clients do not simply buy goods and services (Silverstein *et al*., 2012).

Christensen *et al*. (2007) described the JTBD technique as follows: "Most companies segment their markets by customer demographics or product characteristics and differentiate their offerings by adding features and functions. But the consumer has a different view of the marketplace. He simply has a job to be done and is seeking to hire the best product or service to do it."

Therefore, if a company fully understands the jobs that the client wants to have completed, the company can generate new market segments and revenue streams. If an answer or solution is non-existent, an innovative case arises which is a company growth opportunity (Silverstein *et al*., 2012).

Breakdown

A visual representation can be seen below on how the JTB concept is broken down in Figure R7 below.

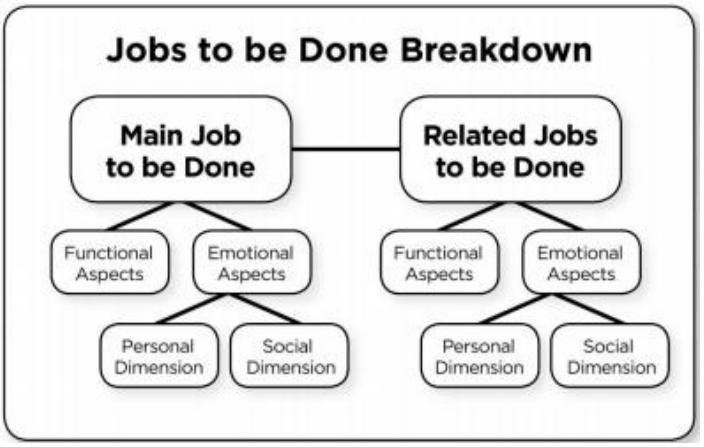


Figure R7: The different aspects and dimensions of the JTBD technique
(Source: Silverstein *et al*., 2012)

Two different types of obligations usually exist - a main and related JTBD (Silverstein *et al*., 2012):

1. Main JTBD: defines the chief jobs the client requires to be completed.
2. Related JTBD: defines the jobs the client requires to have completed along with the main job.

These top level JTBD are then broken down into further aspects (Silverstein *et al*., 2012):

1. Functional: defines the applied and objective client requirements.
2. Emotional: defines the subjective client requirements. This focuses on the client's feelings and perception.

Lastly the emotional aspect is split into two dimensions (Silverstein *et al*., 2012):

1. Personal: defines the client's feelings regarding the solution.
2. Social: defines how the client considers how they are perceived by the public using the solution.

This breakdown process serves as a guide for reaching further to make your current solutions, as well as the oppositions solutions, out-dated. The more breakdown layers which can be filled, the better the solution is, which leads to a better chance that the solution will survive in the market place (Silverstein *et al*., 2012).

An example of how an old JTBD can be executed in a new way can be seen below in Table R2.

Table R2: Comparison of old and new solutions regarding various JTBD

Jobs To Be Done	Old Solution	New Solution
Ingest medicine	Pills and Shots	Skin Patches
Make many products for mass product	Many craftsmen	Production Line
Execute rote legal functions	Lawyers	Legalzoom.com
Detect enemy at night	Flares	Night Vision
Keep windows clean	Clean with squeegee	Self-cleaning glass
Clean teeth	Manual brushing	Automated with sound waves
Search for information	Library	Internet

(Source: Silverstein *et al*., 2012)

The process in Table R2 is executed by the company by asking themselves how the JTBD can be met by new, unexpected, innovative and effective methods, rather than asking how their goods and services can simply be improved (Silverstein *et al*., 2012).

JTBD Steps

The steps involved within the JTBD approach is described in the following five underlined sub-steps.

Step 1: Identifying a Target Markets
The following corporate growth strategies can be used to identify Target Markets:

- Core growth: entails addressing unmet resulting expectations related to the job that clients want to achieve. An example includes a client wanting to pour liquid into a bowl easier (desired resulting expectation) without spilling (undesired resulting expectation). The liquid bottle is then redesigned with finger depressions for a more stable grip.
- Related job growth: is the act of grouping together solutions to be able to execute the resulting expectations of more than one main or related JTBD. An example is a coffee shop that meets various jobs such as serving coffee, serving other drinks, providing WIFI and offering newspapers to be read in a calm environment.
- New jobs growth: incorporates developing and transformational technology and change. It involves the enlargement of the solution region to complete with different JTBD. An example includes candle companies transforming their products to decorative and romantic tools rather than an illumination tool after the light bulb was invented.
- Disruptive growth: entails a concept called *non-consumption.* Some solutions are readily accessible to specific classes of people, but not all people. The four drivers of *non-consumption* include: access to the technology/solution, price, skill and time. An example that includes all these drivers are teeth whitening strips. Before the whitening strips became a

household item, not all people had the time, money, skill or access to technology to whiten their teeth at a dentist.

The list above descends from the easiest to the most difficult strategy. Disruptive growth is complex due the fact that companies often cannibalise their own industry. Core and related job growth strategies concentrates on existing JTBD and clients, while new jobs and disruptive growth strategies focus on new JTBD and clients.

Step 2: Job identification

The goal during the second step is to study the clients and determine what they are trying to achieve, particularly in cases that leave clients with inadequate solutions when compared to other current procedures and technologies.

Methods that can be used during this step includes ethnography, cultural archetype research, client observations, client interviews, client complaints and focus groups.

Step 3: Job categorisation

The jobs are categorised according to the breakdown structure illustrated in Figure R7.

Step 4: Job statement creation

A job statement entails generating a description for the JTBD. The constituents of these statements are an action verb, object of action and contextual clarifier. This can be illustrated by Figure R8 below.

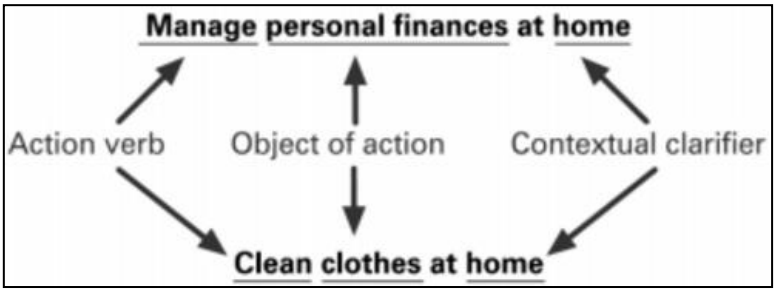


Figure R8: The structure of job statement
(Source: Silverstein et al., 2012)

Step 5: Job prioritisation

Step five entails ranking and arranging all the JTBD according to which offers the best opportunity, and which creates uncontested market space. Often the jobs that clients require to be completed where no decent solution exists are the opportunities that offer the most potential for innovation. The prioritisation process is a function of the client's satisfaction of the solution and the importance of the job itself. This can be illustrated on the following page in Figure R9.

The core growth strategy is used in all items within the under-served category; over-served items are suitable for a disruptive innovation strategy. Finally, the related jobs growth strategy is utilised for all items found within the served right region (Silverstein *et al*., 2012).

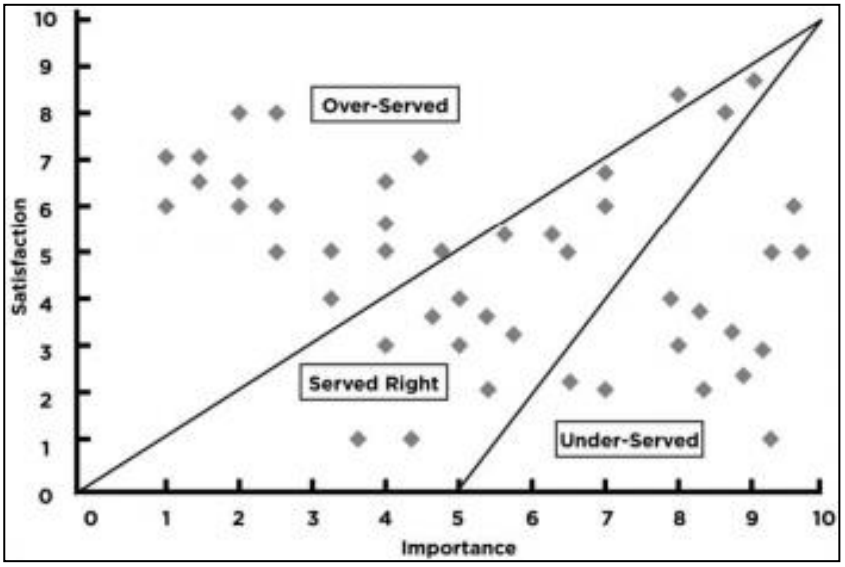


Figure R9: JTBD prioritisation
(Source: Silverstein et al., 2012)

R.2.2.2 Outcome Expectations and KANO Model

The JTBD method is an excellent tool in identifying *what* job is required to be done, however it does not answer the question of *how* customers expect the solutions they hire to achieve the JTBD. The outcome expectations tool essentially complements the JTBD technique and attempts to be an outcome driven-innovation method that addresses the client's expectations centred on the customer's own criteria used to hire a solution for their needs. The outcome expectations approach is helped along by an opportunity grid in which four different types of outcome expectations can be identified (Romero & Molina, 2015). A grid example that was executed for cleaning clothes at home can be seen below in Figure R10.

Undesired	• Undesired smell • Damaged clothes • Allergens or harmful chemicals • Foreign particles on clothes • Inconvenience • Excessive	• Product liability/lawsuits • Imitation products • Environmental complaints • Supply shortages
Desired	• Stain removal • Easy cleaning • Fast cleaning • Clothes smell fresh • Clothes look clean • Unwrinkled clothes	• Revenue growth • Steady profit • Customer loyalty • Steady demand • New derived products • Low cost to make
	Customer	**Provider**

Figure R10: Opportunity grid for cleaning clothes at home
(Source: Silverstein *et al.*, 2012)

The desired row involves asking what outcomes the customers and providers want to achieve, while the undesired row involves asking what outcomes the customers and providers want to avoid. Since one of the core activities of innovation involves meeting customer requirements, the opportunity grid permits the new product development process to maintain an approach in which the customer is the centre focus point (Romero & Molina, 2015).

The KANO methodology compliments the outcome expectations process as well by determining *wows* (good-looking features), the *wants* (anticipated features) and the *must haves* (basic features) for the new product development solution in development (Romero & Molina, 2015). The Kano Model can be seen below in Figure R11.

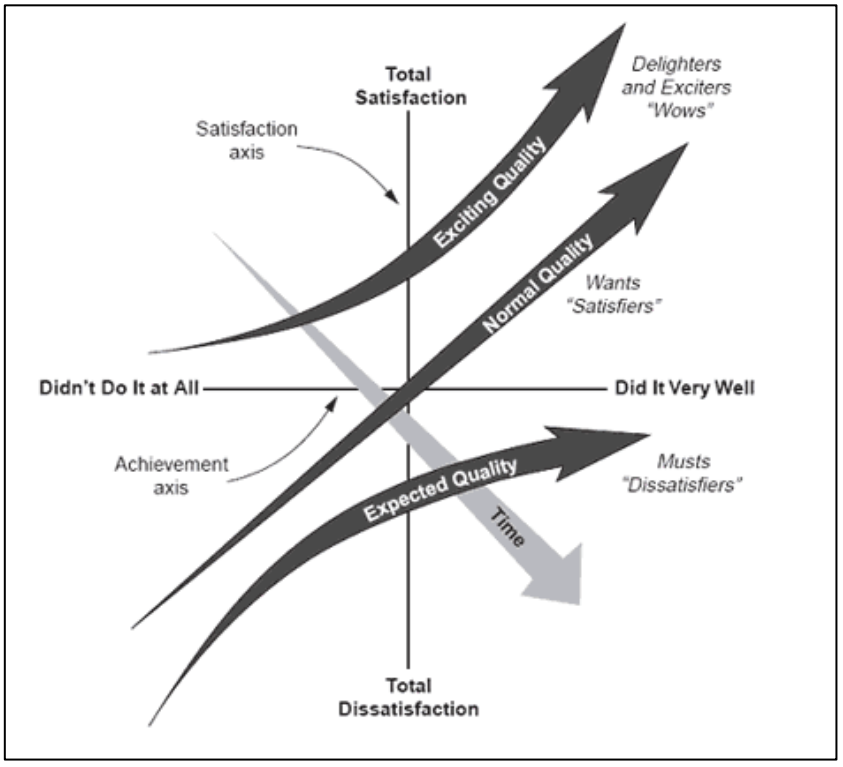


Figure R11: Kano Model
(Source: Kano, 1984)

R.2.2.3 Ethnography and Empathy

Ethnography methodology and a data collection process is considered since the suggested Customer-Centric approach for new product development is very customer focussed. This will permit companies to understand their target markets and individual customers more deeply by not only considering quantitative data, but qualitative data as well (Romero & Molina, 2015). Therefore, three tools are suggested and listed below for this purpose.

1. Traditional segmentation studies: entails considering the demographic, geographic and physiological variables. Demographic variables involve gender, age, income race, education and family size. Geographic variables entail population density, weather and location. Physiological variables consist of attitude, values, lifestyle, archetypes and personality.

2. Personas: involves generating imaginary customers to characterise the different consumers using the solution. This is done to generate a graphical hypothesis of the consumer's profile that must be validated against the ethnographic data and results. The persona template involves the characters story, goals, needs and pains.

3. Empathy map: acts as tool in which companies put themselves within the *client's shoes*. This is done for the companies to arrange and categorise qualitative data to better understand how the consumers feel, think, tell and hear about a current solution. The pains to be relieved and

gains to be obtained from additional features that add value are taken into account as well. The map can be seen below in Figure R12.

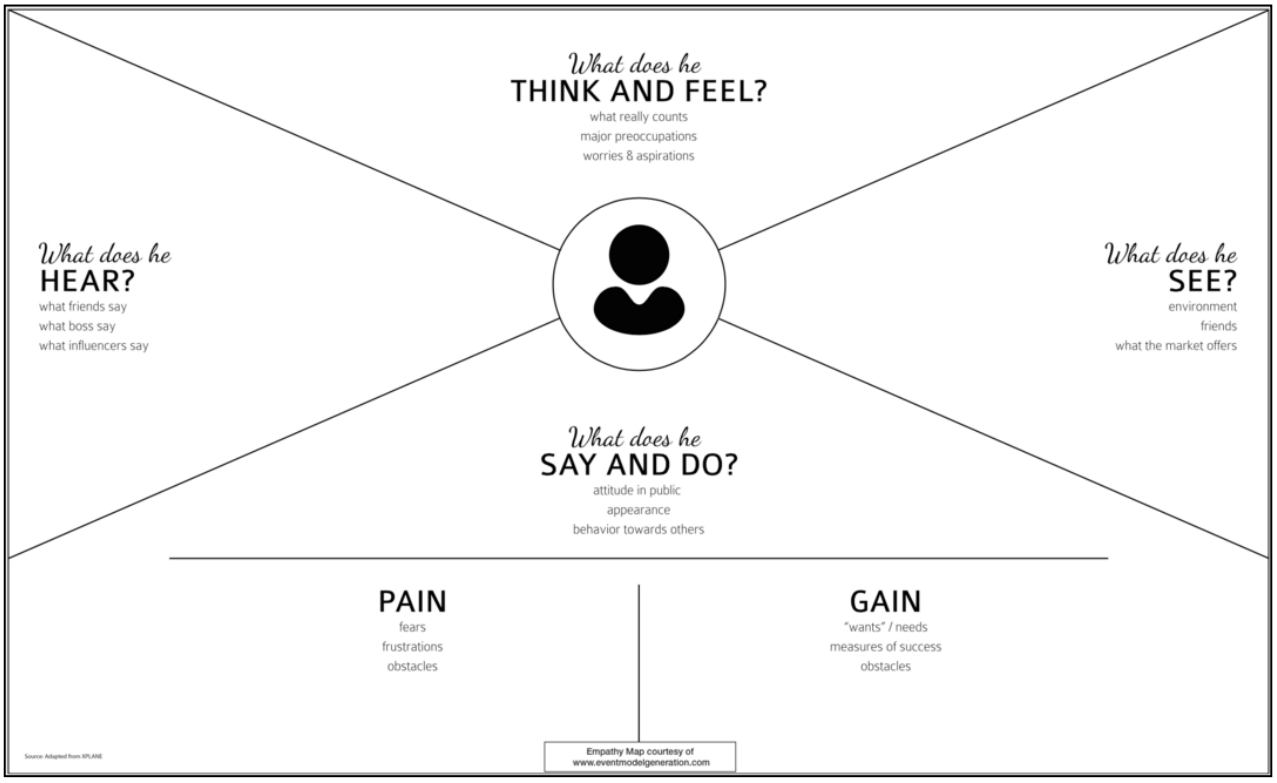


Figure R12: Empathy Canvas
(Source: Romero & Molina, 2015)

Finally, it is important to note that the JTBD, outcome expectations, Ethnography and empathy tools are all interlinked and feedback to each other when trying to gain a better understanding about the identified market segments and customer profiles (Romero & Molina, 2015).

R.2.2.4 Value Proposition Design

Sawhney (2006) suggests that the Value Proposition, which runs in parallel to the JTBD and outcome expectation methods, must offer three types of benefits to a client as below:

1. Functional: features.
2. Economic: money, savings, time.
3. Emotional: emotion of the brand, feeling, affiliation.

A design tool known as the Value Proposition Canvas, as proposed by Osterwalder *et al*., (2014), defines the benefits that customers can come to expect from a good or service. It is a double valuation known as *problem-solution fit* and *product-market fit*. This ensures that the Value Proposition is up to standard in accordance with the customer profile jobs and expectations containing the correct pain and gain relievers and creators respectively. The Value Proposition canvas can be seen at the top of the following page in Figure R13.

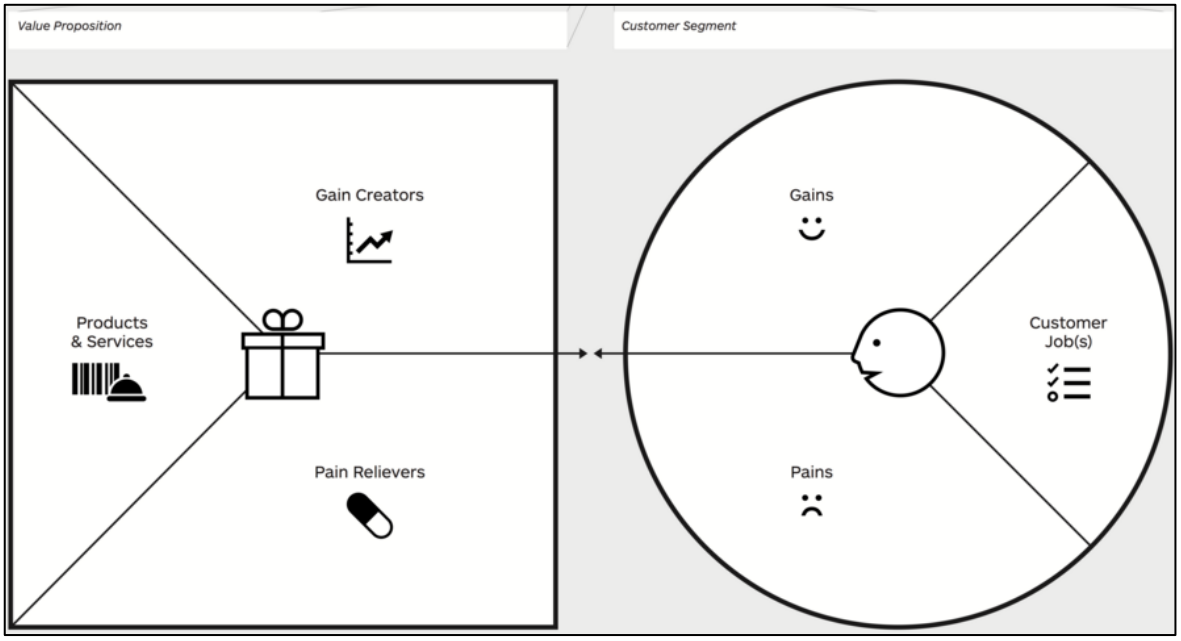


Figure R13: Value proposition and customer alignment
(Source: Osterwalder et al., 2014)

The tool is based on two aspects of the Business Model Canvas: 1) The Customer Segment component and 2) The Value Proposition component. The Customer Segment profile describes the characteristics of the customers in more detail. The profile firstly consists of the jobs the customers want to get done. Secondly it entails the negative pains outlining the negative aspects that customers try to avoid before, during and after getting the job done, such as undesired costs and risks. The third profile aspect is the gains describing the positive outcomes and benefits that the customers require, expect, desire or would be surprised by, such as functional utility, social gains, positive emotions and cost savings. It is important to distinguish which pains and gains are more relevant than others (Osterwalder *et al*., 2014).

The Value Proposition map describes the features of your Value Proposition which the company designs to address the customer jobs, pains and gains. The map is firstly built around the products and services, while the value proposition is built around to get a social, emotional or functional job done to address the pains and gains. Secondly, the pain relievers describe how the product or service alleviates customer pains before, during and after getting the job done. Thirdly, the gain creators describe the positive outcomes and benefits the product and services create for the customer gains (Osterwalder *et al*., 2014).

A perfect problem-solution fit is achieved when the features of the Value Proposition map match the characteristics of the Customer Segment profile. When the market validates this match, a product-market fit is achieved due to the generated customer value (Osterwalder *et al*., 2014).

The customer profile jobs, pains and gains can all be individually ranked on a scale from important down to insignificant. Additionally, the Value Proposition map's products and services, gain creators and pain relievers can be ranked on a scale from essential down too *nice to have* (Osterwalder *et al*., 2014).

It is important to note that these ranking methods such as the Kano Model and the Value Proposition Canvas can provide an excellent platform for future decisions that have to be made with regards to

designing the solution features. In the case of restrictions, the ranks can be used as a data reference in which trade-off decisions can be made (Romero & Molina, 2015).

R.2.3 Convergence Phase

Section R.2.3 elaborates on the tools found within the Convergence Phase.

R.2.3.1 Functions and attributes

The engineering phase of the new product development process entails organisations focusing more on product features as the technicality of goods and services increase. Within this context, the term features can be divided into, 1) functions and 2) attributes (Romero & Molina, 2015). Functions are errands that a solution (or Value Proposition) executes to assist clients to get their job done, and is strongly related to the functional job itself. Attributes are a set of sensory and perceptive factors that a solution provides to, 1) answer back to a customer's expectations, and 2) is also attractive with regards to their purchase preference. Attributes can be classified as tangible or intangible and are strongly related to the jobs that are emotionally and socially orientated.

R.2.3.2 House of Quality

Quality function deployment (QFD) and more specifically, the House of Qualities (HoQ), is a useful tool which translates customer requirements, also known as the voice of the customer, into engineering specifications (Romero & Molina, 2015).

QFD assists companies to concentrate on new advances or product and service enhancements from the perspective of the relative market. It is essentially various preparation and communication procedures internal to a company that focuses on product and service design (Romero & Molina, 2015).

The HoQ is structured around the view that products and services must be designed in such a way as to echo the client's wishes for the company employees to work as a team from the initial conception of the product or service. This results in a competitive advantage within the new product development process due to the new developed good or service possessing the capability to conquer customer choices over other competitors (Hauser & Clausing, 1998). Finally, the HoQ is a commanding tool that non-engineers can utilise to pass information over to the engineers regarding how the product or service must be transformed to meet customer expectations. The HoQ template can be seen in Figure R14 on the following page.

R.2.3.3 Early Prototyping: Quick and Dirty Prototyping

Once this point in the Convergence Phase has been reached, it has already been determined what specifically is required to be designed through the motivated customer needs, JTBD, customer expectations and the directive assistance of the HoQ.

In the early prototyping stage, the designed Value Proposition (or solution) is ready to be produced into a prototype. Romero & Molina (2015) suggest that before an organisation produces a functional prototype, they should first execute quick and dirty prototypes. The quick and dirty prototype concept involves but is not limited to:

- Paper prototyping: If the Value Proposition contains any user interfaces, paper prototyping must be executed.
- Scale modelling: A scale model is generated.
- Scenario testing: All the different scenarios in which the Value Proposition can be used is listed and tested accordingly within each scenario.
- Experience prototyping: Customers are gathered where they test the prototype.
- Try it yourself: The project team must each test the Value Proposition for themselves.

This process is a quick and cheap method through which companies can execute empirical usability tests and to perfect the final Value Proposition's features before the long periodic and capital-intensive stage where a functional prototype is generated. It is generally accepted that customers can judge a physical Value Proposition better than a described one (Romero & Molina, 2015).

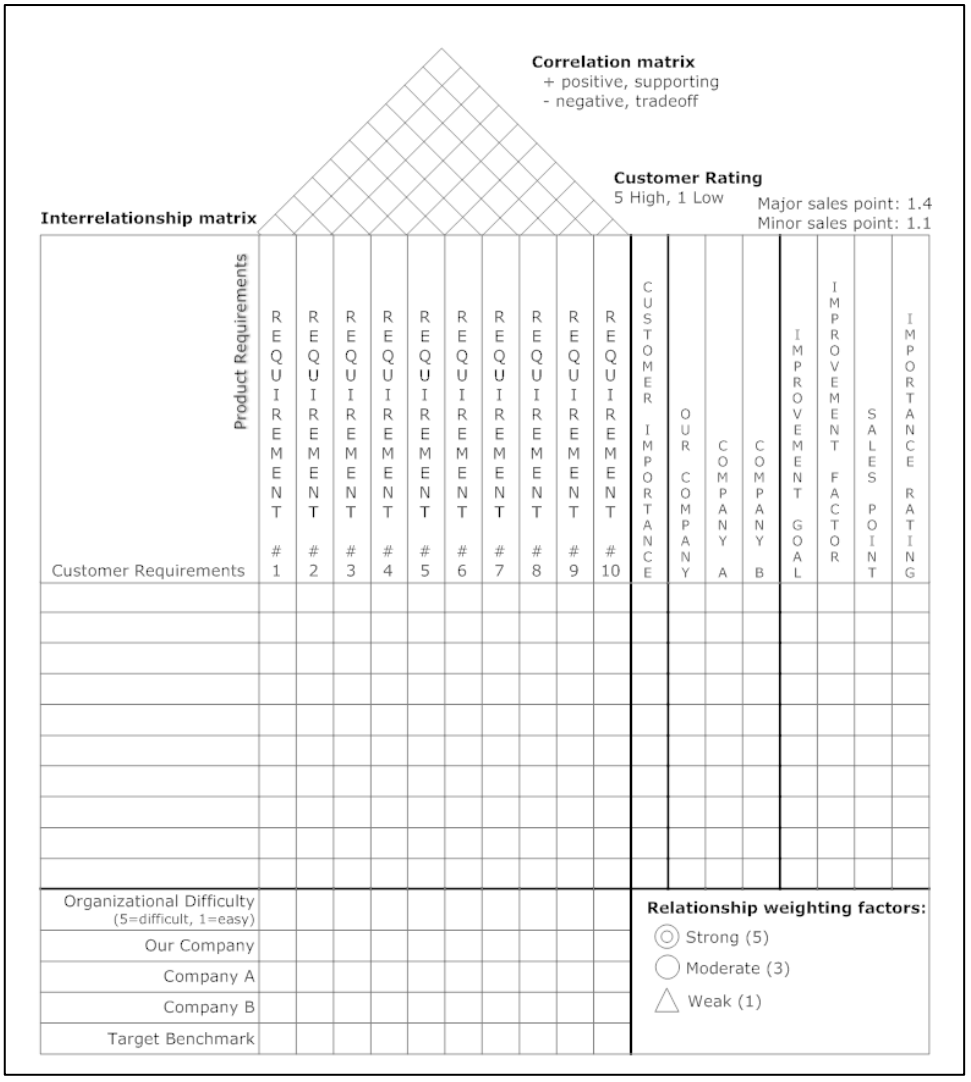


Figure R.14: House of Quality template
(Source: Romero & Molina, 2015)

R.2.3.4 Storyboard

The storyboard tool was developed from the film industry. It assists companies in the communication of how the customer will experience the solution as well as how the solution will assist the customer

to achieve his/her goals. The tool describes the interface and collaboration between the designed solution and the customer on multiple frames by highlighting the most important interactions (Piu, 2011).

Storyboards are essential to make customers understand and visualise the idea and decisions behind a Value Proposition. They are essentially viewed as a type of experience prototype. A storyboard example can be seen below in Figure R15.

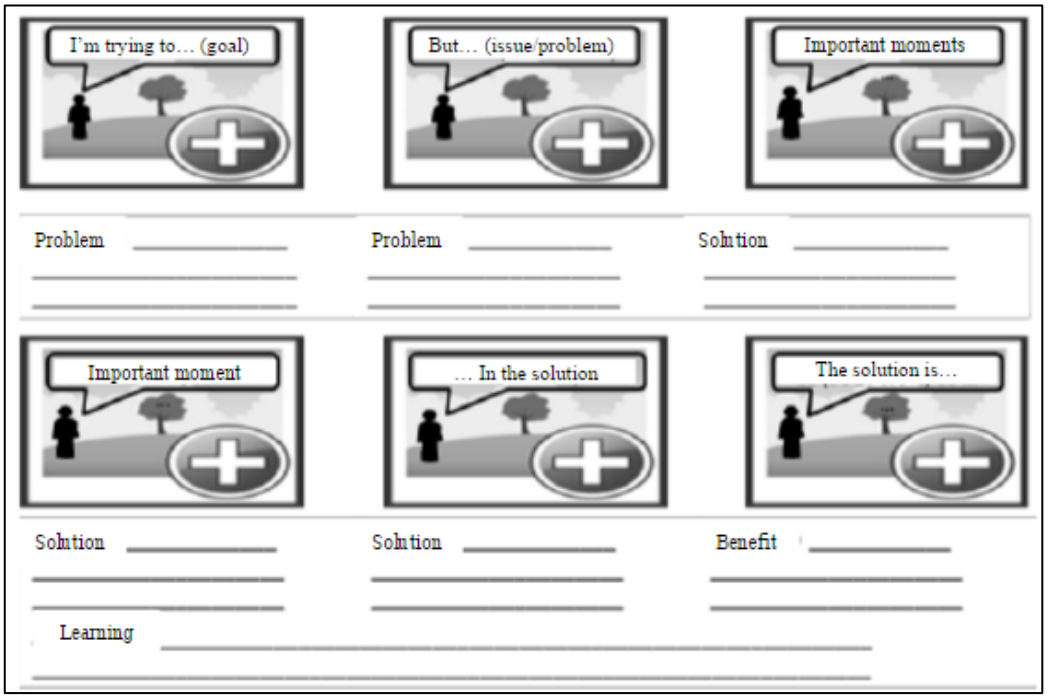


Figure R15: Storyboard template
(Romero & Molina, 2015)

The morphological matrix, TRIZ and functional prototype explanations were subjectively excluded from the Customer-Centric New Product Development Framework explanation.

R.3 Other Individual Tools

Section R.3 lists all the other individual tools that do not fall under a specific approach or process. These tools include Porter's Five Forces, a SWOT analysis and finally 55 Business Model Navigator patterns.

R.3.1 Porter's Five Forces

A strategist's role is to comprehend and be able to deal with competition. It is a common case that a company's top management however does not define competition broadly enough. In today's dynamic and global business environment, competition for profits reaches wider than only looking at other business competitors. It includes four other distinct competitive forces: substitute products, suppliers, possible entrants and customers. The broadened competition that comes from all these five forces describes an industry's assembly and forms the resulting competitive relationships in that industry (Porter, 2008). These five forces are illustrated in Figure R16 below.

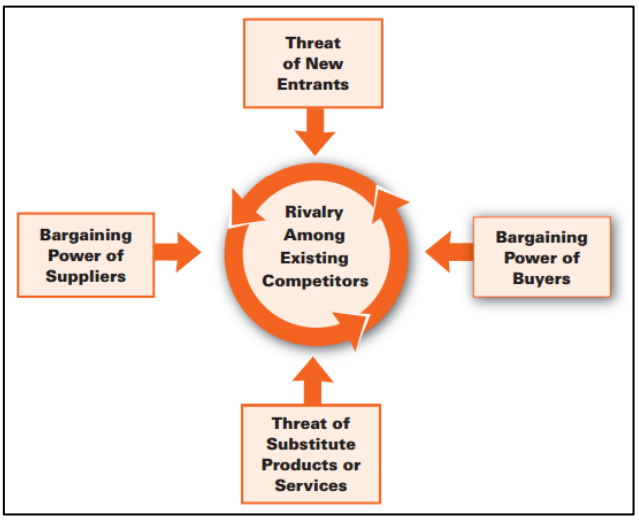


Figure R16: Porter's Five Forces
(Source: Porter, 2008)

Having knowledge of the five forces and from where they come from assists in uncovering the current profitability platform of an industry. Additionally, it also serves as a framework for obtaining a feel and effecting other competitors over a certain period. Similarly, having knowledge about the structure of an industry is vital to obtain a successful strategic position (Porter, 2008). Porter (2008) goes on further to state that it is important for a company to strategise and guard themselves against the five forces and form them into the company's favour instead.

The five competitive forces from Figure R16 are subsequently described in Sections R.3.3.1 to R.3.3.5.

R.3.1.1 Threat of entry

When new competitors enter a market, it automatically brings with them a fresh aspiration to obtain a greater market share which in turn adds extra stress on the costs, prices and ROI required to stay competitive. It goes without saying that new entrants limit the potential to capture profits within an industry. If the threat of a new entry is very high, then to discourage the entrants it is important for officeholders to lower their prices or increase their investments (Porter, 2008).

Entry threats within an industry hinge on the magnitude of entry obstacles as well as the reactions of officeholders that the new entrants are expecting. Low entry obstacles and low retaliation expectations from new competitor's results in a greater entry threat and moderated market profitability. It must be noted that the threat that a new entry will occur and not the actual entry itself is what tones down the profitability. The entry obstacles are an advantage that existing firms have over new start-ups. Examples of these obstacles include expected retaliation, switching costs, capital requirements and restrictive governmental policies.

R.3.1.2 Power of suppliers

Controlling suppliers obtain more value through increasing their prices, inhibiting their quality and service (resulting in decrease in costs) or through transferring costs to other members within the industry. These influential suppliers can squash out profitability from a market that cannot transfer the increases in cost within its own prices.

R.3.1.3 Power of buyers

Powerful buyers exist on the other hand to powerful suppliers. Controlling buyers can obtain increased value through the driving and pushing down of prices, stating they want increased quality and services (which results in and increase of costs) and usually putting market members up against each other – everything at the disbursement of the market profitability. Buyers can be very influential once they gain a negotiating power against the other market members. This is especially true if their market environment is price sensitive where the buyers can use their influence to push down prices.

R.3.1.4 Threat of substitutes

A substitute achieves a similar or same role as another product on the market through unlike means. Examples include telecommunication that acts as a substitute for travelling or e-mail that is a substitute for post. The difficulty of substitutes is that they constantly exist, but they are easy to overlook due to the dissimilarity when compared to the market products. If the threat of a substitute is great, it leads to a downfall in the profitability of the market. Substitutes result in a boundary that is put on prices leading to a market's profitability potential being limited. A detachment of a firm from substitutes is required to avoid the market profitability and potential growth losses. This can be done by increasing the performance of the firm's products as well as from an increase in marketing.

R.3.1.5 Rivalry among existing competitors

Competitive rivalry between present competitors can happen through different means such as discounts, introduction of new goods and marketing. Great amounts of rivalry inhibit gains in profitability within a market. Rival intensity is the highest when there are many competitors, company growth within a market is sluggish, the owners of the companies are very committed and have the objective to perform far above the norm within the market or when companies cannot analyse each other successfully.

R.3.2 SWOT analysis

The SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis is a great tool which can be used by companies to assist them in developing robust business strategies. This is done by considering a company's internal strengths and weaknesses and its external opportunities and threats (Berry, 2016).

The reasons to execute a SWOT analysis can include when a business is considering new market opportunities, obtaining a potential strategic partner or a potential new hire (Berry, 2016). A SWOT analysis template can be seen at the top of the following page in Table R3.

Table R3: SWOT analysis template

Internal		External	
Strengths	Weaknesses	Opportunities	Threats

The strengths category entails all the internal and positive factors. They define a company's good characteristics, may it physical or nonphysical. These factors are can be governed and regulated by the company. Questions that should be considered are listed below (Berry, 2016):

- What is the company good at doing?
- What resources does the company possess internally?
- Intangible assets such as employee talents, abilities, education, social networks and knowledge.
- Tangible assets such as facilities, machinery, investment and distribution networks.
- What does the company do better than its competitors?
- Does the company have a successful R&D capability?

Weaknesses are controllable factors within the organisation that are internally negative. These factors are facets of the organisation that diminish the Value Proposition and therefore places the company at a disadvantage in relation to its competitors. The identified regions must be improved, where essentially the weaknesses are turned into strengths, to increase the organisation's competitive advantage (Berry, 2016). Questions that should be considered are listed below:

- Is the company geographically poorly located?
- Are there any resources that act as a limiting factor?
- What does the company lack in terms of technology, education or abilities?
- Which areas within the company require improvement to achieve the set-out objectives more effectively?

Opportunities are external factors that are positive which act as motives for the existence of the organisation and for it to prosper. Questions that should be considered are listed below (Berry, 2016):

- Which opportunities are available to be captured which will be beneficial to the organisation?
- Has there been recent alterations or growth spurts within some markets which could have potentially generated opportunities?
- Does the organisation possess a positive and good perception?
- Does any type of legislation or funding exist that is obtainable, and which will benefit the organisation?

Threats are externally negative factors which have the potential to harm the organisation's business strategy and even the organisation itself. Companies must have contingency plans in place to mitigate the threats. Questions that should be considered are listed below (Berry, 2016):

- Who are the current competitors in the external market environment?
- Which factors have the potential to be threats to the organisation?
- Are there issues that pose a danger to the organisation's advertising efforts?

- Are there any major alterations in the price, quality of availability of raw materials from suppliers?
- Are there any changes or newly introduced governmental licences, laws, regulations, policies or alterations in the economy or social customer behaviours that could result in a decrease in company sales?

It is recommended that a brainstorming session is held amongst employees where bullet points are initially written down within each category on the SWOT analysis template. All the factors can then be prioritised from most to least important within each category after which a detailed elaboration of each factor is then executed (Berry, 2016).

R.3.3 Industry Analysis

An industry can be defined as "a specific branch of manufacturing, service or trade" (CFA, 2015). It goes on to state that analysing an industry is very useful to fully understand a company's business as well as its business environment.

The following framework for an industry analysis exists, seen below in Figure R17.

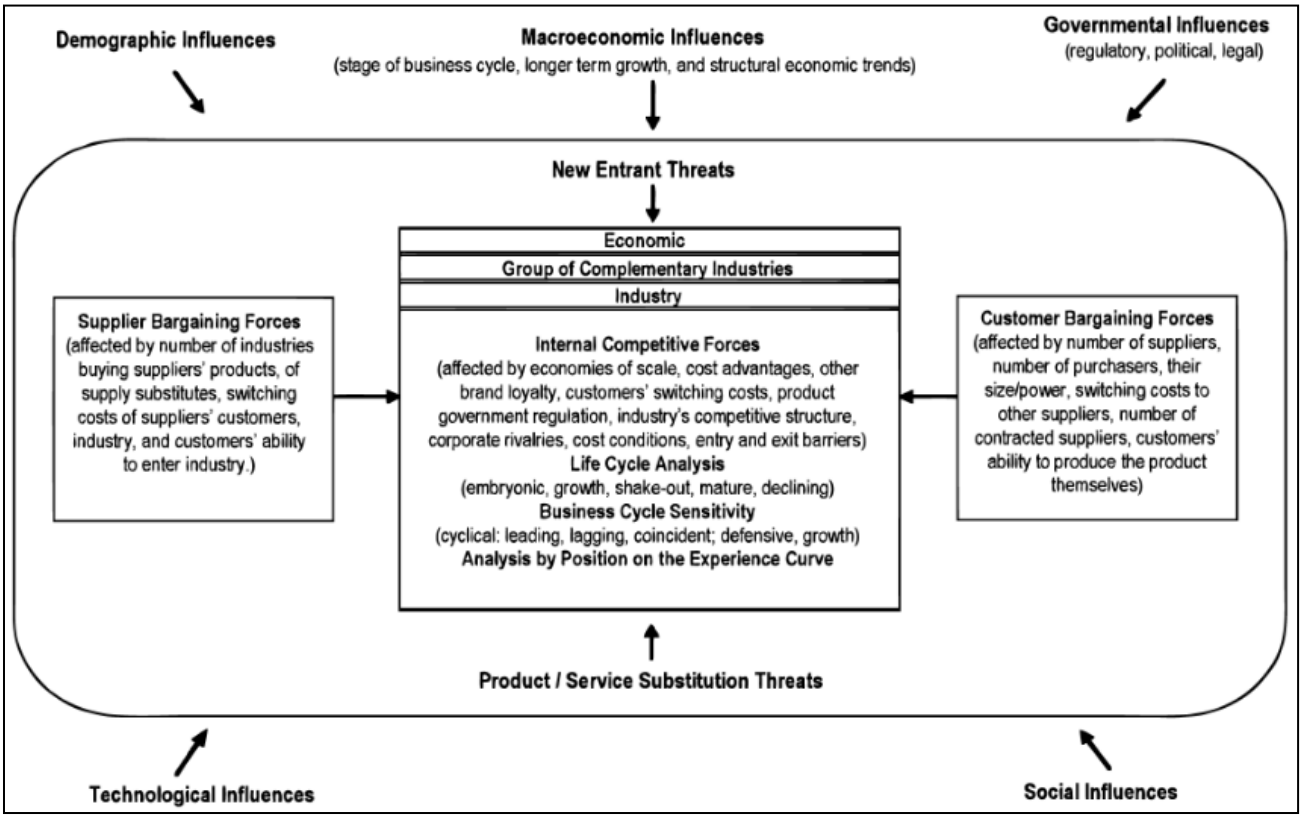


Figure R17: Industry analysis framework
(Source: CFA, 2015)

Schweser (2015) took the above framework and generated the listed points at the top of the following page which should be considered when performing an industry analysis.

- Assess the connections that exist between trends found within industries and macroeconomic variables. This should be done by using information from industry customers, competitors, groups, suppliers and firms.
- Approximate variables within the industry through various methods and settings.
- Identify other industry variable forecasts performed by analysts to compare the approximated industry variables so that they can be validated to identify undervalued industries.
- Determine the valuation of industries relative to one another.
- Relate the valuation of different industries to one another over time to determine their inherent performance volatility as well as during the different business cycle phases.
- Perform an analysis on industry prospects centred on strategic groups, which are sets of companies which differ from others because of the conveyance or intricacy of company's Value Proposition or entry barriers.
- Categorise the industry within the phase of its lifecycle: either introduction, growth, mature or decline phase.
- Place the industry on an experience curve, which contains cost per unit on it vertical axis and cumulative volume on its horizontal axis. The curve slopes downwards due to economies of scale and increases in productivity. This is especially true in industries which contain a large amount of fixed costs.
- Consider the various forces which influence industries such as technology, demographic, government, social and macroeconomic forces.
- Analyse the competitive forces found within an industry.

R.3.4 55 Business Model Navigator Patterns

Gassmann *et al*. (2014) analysed the most prominent business model innovations over 50 years after which they identified 55 business model patterns. These patterns aid in stimulus and inspiration to generate new innovative business models through creative imitation and recombination and can even be directly applied to the company in question (Gassman *et al*., 2014). The 55 business model patterns are listed over the following eight pages in Table R4. These patterns have proven themselves to be successful at generating innovative business models in numerous industries through a prominent design framework known as the Business Model Navigator (Bonakdar, 2015).

Table R4: 55 business model patterns

No	Pattern name	Affected BM compo-nents	Exemplary companies	Pattern description
1	ADD-ON	What Value	Ryanair (1985), SAP (1992), Sega (1998)	The core offering is priced competitively, but there are numerous extras that drive the final price up. In the end, the costumer pays more than he or she initially assumed. Cus-tomers benefit from a variable offer, which they can adapt to their specific needs.
2	AFFILIATION	How Value	Amazon Store (1995), Cybererotica (1994), CDnow (1994), Pinterest (2010)	The focus lies in supporting others to successfully sell products and directly benefit from successful transactions. Affiliates usually profit from some kind of pay-per-sale or pay-per-display compensation. The company, on the other hand, is able to gain access to a more diverse potential customer base without additional active sales or marketing efforts.
3	AIKIDO	Who What Value	Six Flags (1961), The Body Shop (1976), Swatch (1983), Cirque du Soleil (1984), Nintendo (2006)	Aikido is a Japanese martial art in which the strength of an attacker is used against him or her. As a business model, Aikido allows a company to offer something diametrically opposed to the image and mindset of the competition. This new value proposition attracts customers who prefer ideas or concepts opposed to the mainstream.
4	AUCTION	What Value	eBay (1995), Winebid (1996), Priceline (1997), Google (1998), Elance (2006), Zopa (2005), MyHammer (2005)	Auctioning means selling a product or service to the high-est bidder. The final price is achieved when a particular end time of the auction is reached or when no higher offers are received. This allows the company to sell at the highest price acceptable to the customer. The customer benefits from the opportunity to influence the price of a product.
5	BARTER	What Value	Procter & Gamble (1970), Pepsi (1972), Lufthansa (1993), Magnolia Hotels (2007), Pay with a Tweet (2010)	Barter is a method of exchange in which goods are given away to customers without the transaction of actual money. In return, they provide something of value to the sponsor-ing organisation. The exchange does not have to show any direct connection and is valued differently by each party.
6	CASH MA-CHINE	How Value	American Express (1891), Dell (1984), Amazon Store (1995), PayPal (1998), Blacksocks (1999), MyFab (2008), Groupon (2008)	In the Cash Machine concept, the customer pays upfront for the products sold to the customer before the company is able to cover the associated expenses. This results in in-creased liquidity which can be used to amortise debt or to fund investments in other areas.
7	CROSS SELLING	How What Value	Shell (1930), IKEA(1956), Tchibo (1973), Aldi (1986), SANIFAIR (2003)	In this model, services or products from a formerly exclud-ed industry are added to the offerings, thus leveraging existing key skills and resources. In retail especially, com-panies can easily provide additional products and offerings that are not linked to the main industry on which they were previously focused. Thus, additional revenue can be gener-ated with relatively few changes to the existing infrastruc-ture and assets, since more potential customer needs are met.
8	CROWD-FUNDING	How Value	Marillion (1997), Cassava Films (1998), Diaspora (2010), Brainpool (2011), Pebble Technology (2012)	A product, project or entire start-up is financed by a crowd of investors who wish to support the underlying idea, typi-cally via the Internet. If the critical mass is achieved, the idea will be realized and investors receive special benefits, usually proportionate to the amount of money they provid-ed.

No	Pattern name	Affected BM compo-nents	Exemplary companies	Pattern description
9	Crowd-sourcing	How Value	Threadless (2000), Procter & Gamble (2001), InnoCentive (2001), Cisco (2007), MyFab (2008)	The solution of a task or problem is adopted by an anony-mous crowd, typically via the Internet. Contributors receive a small reward or have the chance to win a prize if their solution is chosen for production or sale. Customer interac-tion and inclusion can foster a positive relationship with a company, and subsequently increase sales and revenue.
10	Customer Loyalty	What Value	Sperry & Hutchinson (1897), American Airlines (1981), Safeway Club Card (1995), Payback (2000)	Customers are retained and loyalty assured by providing value beyond the actual product or service itself, i.e., through incentive-based programs. The goal is to increase loyalty by creating an emotional connection or simply rewarding it with special offers. Customers are voluntarily bound to the company, which protects future revenue.
11	Digitiza-tion	What How	Spiegel Online (1994), WXYC (1994), Hotmail (1996), Jones Internation-al University (1996), CEWE Color (1997), SurveyMonkey (1998), Napster (1999), Wikipe-dia (2001), Facebook (2004), Dropbox (2007), Netflix (2008), Next Issue Media (2011)	This pattern relies on the ability to turn existing products or services into digital variants, and thus offer advantages over tangible products, e.g., easier and faster distribution. Ideally, the digitization of a product or service is realized without harnessing the value proposition which is offered to the customer. In other words: efficiency and multiplica-tion by means of digitization does not reduce the perceived customer value.
12	Direct Selling	What How Value	Vorwerk (1930), Tupper-ware (1946), Amway (1959), The Body Shop (1976), Dell (1984), Nestle Nespresso (1986), First Direct (1989), Nestlé Special.T (2010), Dollar Shave Club (2012), Nestlé BabyNes (2012)	Direct selling refers to a scenario whereby a company's products are not sold through intermediary channels, but are available directly from the manufacturer or service provider. In this way, the company skips the retail margin or any additional costs associated with the intermediates. These savings can be forwarded to the customer and a standardized sales experience established. Additionally, such close contact can improve customer relationships.
13	E-Commerce	What How Value	Dell (1984), Asos (2000), Zappos (1999), Amazon Store (1995), Flyeralarm (2002), Blacksocks (1999), Dollar Shave Club (2012), Winebid (1996), Zopa (2005)	Traditional products or services are delivered through online channels only, thus removing costs associated with running a physical branch infrastructure. Customers benefit from higher availability and conven-ience, while the company is able to integrate its sales and distribution with other internal processes.
14	Experience Selling	What Who Value	Harley Davidson (1903), IKEA (1956), Trader Joe's (1958), Starbucks (1971), Swatch (1983), Nestlé Nespresso (1986), Red Bull (1987), Barnes & Noble (1993), Nestlé Special.T (2010)	The value of a product or service is increased with the customer experience offered with it. This opens the door for higher customer demand and commensurate increase in prices charged. This means that the customer experience must be adapted accordingly, e.g., by attuning promotion or shop fittings.
15	Flat rate	What Value	SBB (1898), Buckaroo Buffet (1946), Sandals Resorts (1981), Netflix (1999), Next Issue Media (2011)	In this model, a single fixed fee for a product or service is charged, regardless of actual usage or time restrictions on it. The user benefits from a simple cost structure while the company benefits from a constant revenue stream.
16	Frac-tional Ownership	What How Value	Hapimag (1963), Netjets (1964), Mobility Carshar-ing (1997), écurie25 (2005), HomeBuy (2009)	Fractional ownership describes the sharing of a certain asset class amongst a group of owners. Typically, the asset is capital intensive but only required on an occasional basis. While the customer benefits from the rights as an owner, the entire capital does not have to be provided alone.

No	Pattern name	Affected BM compo-nents	Exemplary companies	Pattern description
17	FRAN-CHISING	What How Value	Singer Sewing Machine (1860), McDonald's (1948), Marriott Interna-tional (1967), Starbucks (1971), Subway (1974), Fressnapf (1992), Naturhouse (1992), McFit (1997), BackWerk (2001)	The franchisor owns the brand name, products, and corpo-rate identity, and these are licensed to independent fran-chisees who carry the risk of local operations. Revenue is generated as part of the franchisees' revenue and orders. The franchisees benefit from the usage of well known brands, know-how, and support.
18	FREEMIUM	What Value	Hotmail (1996), Survey-Monkey (1998), LinkedIn (2003), Skype (2003), Spotify (2006), Dropbox (2007)	The basic version of an offering is given away for free in the hope of eventually persuading the customers to pay for the premium version. The free offering is able to attract the highest volume of customers possible for the company. The generally smaller volume of paying 'premium customers' generate the revenue, which also cross-finances the free offering.
19	FROM PUSH-TO-PULL	What How	Toyota (1975), Zara (1975), Dell (1984), Geberit (2000)	This pattern describes the strategy of a company to decen-tralize and thus add flexibility to the company's processes in order to be more customer focused. To quickly and flexibly respond to new customer needs, any part of the value chain - including production or even research and development - can be affected.
20	GUARAN-TEED AVAIL-ABILITY	What How Value	NetJets (1964), PHH Corporation (1986), IBM (1995), Hilti (2000), MachineryLink (2000), ABB Turbo Systems (2010)	Within this model, the availability of a product or service is guaranteed, resulting in almost zero downtime. The cus-tomer can use the offering as required, which minimizes losses resulting from downtime. The company uses exper-tise and economies of scale to lower operation costs and achieve these availability levels.
21	HIDDEN REVENUE	What How Value	JCDecaux (1964), Sat.1 (1984), Metro Newspaper (1995), Google (1998), Facebook (2004), Spotify (2006), Zattoo (2007)	The logic that the user is responsible for the income of the business is abandoned. Instead, the main source of revenue comes from a third party, which cross-finances whatever free or low-priced offering attracts the users. A very com-mon case of this model is financing through advertisement, where attracted customers are of value to the advertisers who fund the offering. This concept facilitates the idea of 'separation between revenue and customer'.
22	INGREDIENT BRANDING	What How Value	DuPont Teflon (1964), W.L. Gore & Associates (1976), Intel (1991), Carl Zeiss (1995), Shimano (1995), Bosch(2000)	Ingredient branding describes the specific selection of an ingredient, component, and brand originating from a specif-ic supplier, which will be included in another product. This product is then additionally branded and advertised with the ingredient product, collectively adding value for the cus-tomer. This projects the positive brand associations and properties on the product, and can increase the attractive-ness of the end product.
23	INTEGRATOR	What How	Carnegie Steel (1870), Ford (1908), Zara (1975), Exxon Mobil (1999), BYD Auto (1995)	An integrator is in command of the bulk of the steps in a value-adding process. The control of all resources and capabilities in terms of value creation lies with the compa-ny. Efficiency gains, economies of scope, and lower de-pendencies from suppliers result in a decrease in costs and can increase the stability of value creation.

No	Pattern name	Affected BM compo-nents	Exemplary companies	Pattern description
24	Layer Player	How Value	Dennemeyer (1962), Wipro Technologies (1980), TRUSTe (1997), PayPal (1998), Amazon Web Services (2002)	A layer player is a specialized company limited to the provision of one value-adding step for different value chains. This step is typically offered within a variety of independent markets and industries. The company benefits from economies of scale and often produces more efficient-ly. Further, the established special expertise can result in a higher quality process.
25	Leverage Customer Data	What How	Amazon Store (1995), Google (1998), Payback (2000), Facebook (2004), PatientsLikeMe (2004), 23andMe (2006), Twitter (2006), Verizon Commu-nications (2011)	New value is created by collecting customer data and pre-paring it in beneficial ways for internal usage or interested third-parties. Revenues are generated by either selling this data directly to others or leveraging it for own purposes, i.e., to increase the effectiveness of advertising.
26	License	How Value	BUSCH (1870), IBM (1920), DIC 2 (1973), ARM (1989), Duales System Deutschland (1991), Max Havelaar (1992)	Efforts are focused on developing intellectual property that can be licensed to other manufacturers. This model, there-fore, relies not on the realization and utilization of knowledge in the form of products, but attempts to trans-form these intangible goods into money. This allows a company to focus on research and development. It also allows the provision of knowledge, which would otherwise be left unused and potentially be valuable to third parties.
27	Lock-in	What How Value	Gillette(1904), Lego (1949), Microsoft (1975), Hewlett-Packard (1984), Nestlé Nespresso (1986), Nestlé BabyNes (2012), Nestlé Special.T (2010)	Customers are locked into a vendor's world of products and services. Using another vendor is impossible without incur-ring substantial switching costs, and thus protecting the company from losing customers. This lock-in is either generated by technological mechanisms or substantial interdependencies of products or services.
28	Long Tail	How Value	Amazon Store (1995), eBay (1995), Netflix (1999), Apple iPod/iTunes (2003), YouTube (2005),	Instead of concentrating on blockbusters, the main bulk of revenues is generated through a 'long tail' of niche prod-ucts. Individually, these neither demand high volumes, nor allow for a high margin. If a vast variety of these products are offered in sufficient amounts, the profits from resultant small sales can add up to a significant amount.
29	Make More of it	Who What How Value	Porsche (1931), Festo Didactic (1970), BASF (1998), Amazon Web Services (2002), Senn-heiser Sound Academy (2009)	Know-how and other available assets existing in the com-pany are not only used to build own products, but also offered to other companies. Slack resources, therefore, can be used to create additional revenue besides those generat-ed directly from the core value proposition of the company.
30	Mass Custom-ization	What Value	Dell (1984), Levi's (1990), Miadidas (2000), PersonalNOVEL (2003), Factory121 (2006), mymuesli (2007), My Unique Bag (2010)	Customizing products through mass production once seemed to be an impossible endeavor. The approach of modular products and production systems has enabled the efficient individualization of products. As a consequence, individual customer needs can be met within mass produc-tion circumstances and at competitive prices.
31	No Frills	How What Value	Ford (1908), Aldi (1913), McDonald's (1948), Southwest Airlines (1971), Aravind Eye care System (1976), Accor (1985), McFit (1997), Dow Corning (2002)	Value creation focuses on what is necessary to deliver the core value proposition of a product or service, typically as basic as possible. Cost savings are shared with the custom-er, usually resulting in a customer base with lower purchas-ing power or purchasing willingness.

No	Pattern name	Affected BM components	Exemplary companies	Pattern description
32	Open Business Model	What Who Value	Valve Corporation (1998), Abril (2008)	In open business models, collaboration with partners in the ecosystem becomes a central source of value creation. Companies pursuing an open business model actively search for novel ways of working together with suppliers, customers, or complementors to open and extend their business.
33	Open Source	Who What How Value	IBM (1955), Mozilla (1992), Red Hat (1993), mondoBIOTECH (2000), Wikipedia (2001), Local Motors (2008)	In software engineering, the source code of a software product is not kept proprietary, but is freely accessible for anyone. Generally, this could be applied to any technology details of any product. Others can contribute to the product, but also use it free as a sole user. Money is typically earned with services that are complimentary to the product, such as consulting and support.
34	Orchestrator	How Value	Procter & Gamble (1970), Li & Fung (1971), Nike (1978), Bharti Airtel (1995)	Within this model, the company's focus is on the core competencies in the value chain. The other value chain segments are outsourced and actively coordinated. This allows the company to reduce costs and benefit from the suppliers' economies of scale. Furthermore, the focus on core competencies can increase performance.
35	Pay per Use	What How Value	Hot Choice (1988), Google (1998), Ally Financial (2004), Better Place (2007), Car2Go (2008)	In this model, the actual usage of a service or product is metered. The customer pays on the basis of what he or she effectively consumes. The company is able to attract customers who wish to benefit from the additional flexibility, which might be priced higher.
36	Pay What You Want	How Value	One World Everbody Eats (2003), NoiseTrade (2006), Radiohead (2007), Humble Bundle (2010), Panera Bread Bakery (2010)	The buyer pays any desired amount for a given commodity, sometimes even zero. In some cases, a minimum floor price may be set, and/or a suggested price may be indicated as guidance for the buyer. The customer is allowed to influence the price, while the seller benefits from higher numbers of attracted customers, since individuals' willingness to pay is met. Based on the existence of social norms and morals, this is only rarely exploited, which makes it suitable to attract new customers.
37	Peer-to-Peer	What Value	eBay (1995), Craigslist (1996), Napster (1999), Couchsurfing (2003), LinkedIn (2003), Skype (2003), Zopa (2005), SlideShare (2006), Twitter (2006), Dropbox (2007), Airbnb (2008), TaskRabbit (2008), RelayRides (2010), Gidsy (2011)	This model is based on a cooperation that specializes in mediating between individuals belonging to an homogeneous group. It is often abbreviated as P2P. The company offers a meeting point, i.e., an online database and communication service that connects these individuals (these could include offering personal objects for rent, providing certain products or services, or the sharing of information and experiences).
38	Performance-based Contracting	What Value	Rolls-Royce (1980), Smartville (1997), BASF (1998), Xerox (2002)	A product's price is not based upon the physical value, but on the performance or valuable outcome it delivers in the form of a service. Performance based contractors are often strongly integrated into the value creation process of their customers. Special expertise and economies of scale result in lower production and maintenance costs of a product, which can be forwarded to the customer. Extreme variants of this model are represented by different operation schemes in which the product remains the property of the company and is operated by it.

No	Pattern name	Affected BM compo-nents	Exemplary companies	Pattern description
39	Razor and Blade	What How Who	Standard Oil Company (1880), Gillette (1904), Hewlett-Packard (1984), Nestlé Nespresso (1986), Apple iPod/iTunes (2003), Amazon Kindle (2007), Better Place (2007), Nestlé Special.T (2010), Nestlé BabyNes (2012)	The basic product is cheap or given away for free. The consumables that are needed to use or operate it, on the other hand, are expensive and sold at high margins. The initial product's price lowers customers' barriers to purchase, while the subsequent recurring sales cross-finance it. Usually, these products are technologically bound to each other to further enhance this effect.
40	Rent Instead of Buy	What How Value	Saunders System (1916), Xerox (1959), Blockbuster (1985), Rent a Bike (1987), Mobility Carsharing (1997), MachineryLink (2000), CWS-boco (2001), Luxusbabe (2006), Flexpetz (2007), Car2Go(2008)	The customer does not buy a product, but instead rents it. This lowers the capital typically needed to gain access to the product. The company itself benefits from higher profits on each product, as it is paid for the duration of the rental period. Both parties benefit from higher efficiency in product utilization as time of non-usage, which unnecessarily binds capital, is reduced on each product.
41	Revenue Sharing	What How Value	CDnow (1994), HubPages(2006), Apple iPhone/AppStore(2008), Groupon (2008)	Revenue sharing refers to firms' practice of sharing revenues with their stakeholders, such as complementors or even rivals. Thus, in this business model, advantageous properties are merged to create symbiotic effects in which additional profits are shared with partners participating in the extended value creation. One party is able to obtain a share of revenue from another that benefits from increased value for its customer base.
42	Reverse Engineering	What Value	Bayer (1897), Pelikan (1994), Brilliance China Auto (2003), Denner (2010)	This pattern refers to obtaining a competitor's product, taking it apart, and using this information to produce a similar or compatible product. Because no huge investment in research or development is necessary, these products can be offered at a lower price than the original product.
43	Reverse Innovation	What Value	Logitech (1981), Haier (1999), Nokia (2003), Renault (2004), General Electric (2007)	Simple and inexpensive products, that were developed within and for emerging markets, are also sold in industrial countries. The term 'reverse' refers to the process by which new products are typically developed in industrial countries and then adapted to fit emerging market needs.
44	Robin Hood	How What	Aravind Eye Care System (1976), One Laptop per Child (2005), TOMS Shoes (2006), Warby Parker (2008)	The same product or service is provided to 'the rich' at a much higher price than to 'the poor'. Thus, the main bulk of profits are generated from the wealthy customer base. Serving 'the poor' is not profitable per se, but creates economies of scale, which other providers cannot achieve. Additionally, it has a positive effect on the company's image.
45	Self-Service	What How	McDonald's (1948), IKEA (1956), Accor (1985), Mobility Carsharing (1997), BackWerk (2001), Car2Go (2008)	A part of the value creation is transferred to the customer in exchange for a lower price of the service or product. This is particularly suited for process steps that add relatively little perceived value for the customer, but incur high costs. Customers benefit from efficiency and time savings, while putting in their own effort. This can also increase efficiency, since in some cases, the customer can execute a value-adding step more quickly and in a more target-oriented manner than the company.

No	Pattern name	Affected BM compo-nents	Exemplary companies	Pattern description
46	Shop-in-Shop	Who Value	Tim Hortons (1964), Tchibo (1987), Deutsche Post (1995), Bosch (2000), MinuteClinic (2000)	Instead of opening new branches, a partner is chosen whose branches can profit from integrating the company's offer-ings in a way that imitates a small shop within another shop (a win-win situation). The hosting store can benefit from more attracted customers and is able to gain constant reve-nue from the hosted shop in the form of rent. The hosted company gains access to cheaper resources such as space, location, or workforce.
47	Solution Provider	What How	Lantal Textiles (1954), Heidelberger Druckmaschinen (1980), Tetra Pak (1993), Geek Squad (1994), CWS-boco (2001), Apple iPod/iTunes (2003), 3M Services (2010)	A full service provider offers total coverage of products and services in a particular domain, consolidated via a single point of contact. Special know-how is given to the customer in order to increase his or her efficiency and performance. By becoming a full service provider, a com-pany can prevent revenue losses by extending their service and adding it to the product. Additionally, close contact with the customer allows great insight into customer habits and needs which can be used to improve the products and services.
48	Sub-scription	How What	Blacksocks (1999), Net-flix (1999), Salesforce (1999), Jamba (2004), Spotify (2006), Next Issue Media (2011), Dollar Shave Club (2012)	The customer pays a regular fee, typically on a monthly or an annual basis, in order to gain access to a product or service. While customers mostly benefit from lower usage costs and general service availability, the company gener-ates a more steady income stream.
49	Super-market	What Value	King Kullen Grocery Company (1930), Merrill Lynch (1930), Toys"R"Us (1948), The Home Depot (1978), Best Buy (1983), Fressnapf (1985), Staples (1986)	A company sells a large variety of readily available prod-ucts and accessories under one roof. Generally, the assort-ment of products is large but the prices are kept low. More customers are attracted due to the great range on offer, while economies of scope yield advantages for the compa-ny.
50	Target the Poor	What How Value	Grameen Bank (1983), Arvind Mills (1995), Bharti Airtel (1995), Hindustan Unilever (2000), Tata Nano (2009), Walmart (2012)	The product or service offering does not target the premium customer, but rather, the customer positioned at the base of the pyramid. Customers with lower purchasing power benefit from affordable products. The company generates small profits with each product sold, but benefits from the higher sales numbers that usually come with the scale of the customer base.
51	Trash-to-Cash	Who What How Value	Duales System Deutsch-land (1991), Freitag lab.ag (1993), Greenwire (2001), Emeco (2010), H&M (2012)	Used products are collected and either sold in other parts of the world or transformed into new products. The profit scheme is essentially based on low-to-no purchase prices. Resource costs for the company are practically eliminated, whilst the supplier's waste disposal is either provided, or associated costs are reduced. This also addresses custo-mers' potential environmental awareness ideals.
52	Two-Sided Market	What How Value	Diners Club (1950), JCDecaux (1964), Sat.1 (1984), Amazon Store (1995), eBay (1995), Metro Newspaper (1995), Priceline (1997), Google (1998), Facebook (2004), MyHammer(2005), Elance (2006), Zattoo (2007), Groupon (2008)	A two-sided market facilitates interactions between multi-ple interdependent groups of customers. The value of the platform increases as more groups or as more individual members of each group are using it. The two sides usually come from disparate groups, e.g., businesses and private interest groups.

No	Pattern name	Affected BM compo-nents	Exemplary companies	Pattern description
53	ULTIMATE LUXURY	What Value	Lamborghini (1962), Jumeirah Group (1994), MirCorp (2000), The World (2002), Abbot Downing (2011)	This pattern describes the strategy of a company to focus on the upper side of society's pyramid. This allows a company to distinguish its products or services greatly from others. High standards of quality or exclusive privileges are the main focus to attract these kinds of customers. The necessary investments for these differentiations are met by the relatively high prices that can be achieved - which usually allow for very high margins.
54	USER DESIGNED	What How Value	Spreadshirt (2001), Lulu (2002), Lego Factory (2005), Amazon Kindle (2007), Ponoko (2007), Apple iPhone/AppStore (2008), Createmytattoo (2009), Quirky (2009)	Within user manufacturing, a customer is both the manufacturer and the consumer. As an example, an online platform provides the customer with the necessary support in order to design and merchandise the product, e.g., product design software, manufacturing services, or an online shop to sell the product. Thus, the company only supports the customers in their undertakings and benefits from their creativity. The customer benefits from the potential to realize entrepreneurial ideas without having to provide the required infrastructure. Revenue is then generated as part of the actual sales.
55	WHITE LABEL	What How	Foxconn (1974), Richelieu Foods (1994), Printing-In-A-Box (2005)	A white label producer allows other companies to distribute its goods under their brands, so that it appears as if they are made by them. The same product or service is often sold by multiple marketers and under different brands. This way, various customer segments can be satisfied with the same product.

(Source: Gassman *et al*., 2014)

Appendix S

Appendix S provides the tools contained within each framework step and their respective key considerations.

Table S1: Prominent Step and tool descriptions

Step	Tool/Concept	Key Consideration(s)
1	BMI Conditions	Consider whether the following external factors initiated the requirement for BMI: Value chain, new entrants, competitors, customer preferences, technology, regulatory/legal and environment.
		Consider whether the following internal factors initiated the requirement for BMI: Product/service innovation, performance and resource availability.
2	Understand Current Business Model	Gain an in depth and clear understanding of the current business model of the parent company in terms of the business model canvas.
3	Industry Analysis	Obtain information about the chosen industry by considering its influencing forces, lifecycles, valuations, variables and comparisons.
5	Seven Sources of opportunity innovativeness	Consider the following sources from which opportunities can arise from: unforeseen success/failure of an event, current reality and what is should be, innovation based process need, unforeseen changes in the assembly of an industry/market, demographics, new scientific/non-scientific knowledge and changes in view, mood and meaning.
	Opportunity recognition model	Consider how prior knowledge of markets and customer problems, entrepreneurial alertness and social networks can be used to successfully identify market opportunities.
	JTBD	Consider the identification of functional and emotional jobs of customers to identify those jobs which are under-served, rightly-served and over-served.
	Step 1 Reference	Consider how market opportunities can arise from the external and internal BMI condition drivers.
	Step 10 Reference	Consider how market opportunities can arise from a competitor analysis, customer analysis, consider technological trends and by looking past present customer and market boundaries.
7	Opportunity Assessment Framework	Consider how an external, financial and internal analysis can filter out non-promising market opportunities as well as rank the pool of opportunities from most to least promising.
9	Core, White Space & Adjacency opportunity conditions	Classify the pool of viable market opportunities as either a core, white space or adjacency opportunity to separate the different kinds of market opportunities from one another.
10 Competitor Analysis	Product Characteristics	Consider the characteristics of the competitor's value proposition in terms of their main components, range, accessories, substitutes, strengths/weaknesses when compared to substitutes, life-cycle, differentiation, market share and financial status.
	Overview of Applications	Obtain an overview of the applications of the competitors' value proposition by considering its name, description, market size, fit and attractiveness.
	Competitive Environment	Map and understand the competitive environment by considering their concentration, behaviours, best practices, strengths/weaknesses, barriers to entry, supplier concentration and the regulatory environment of the industry.
	Competitors Business Model	Consider how to plot and understand the competitor's business models in terms of the business model canvas from which innovations can then arise.
	Competitors Strategic Value Proposition Canvas	Identify areas of improvement of the competitor's value proposition by considering the difference in its performance and its importance to the customer in terms of price, product, brand, customer and life-cycle.
	Porter's Five Forces	Map the competitive forces within the white space opportunity by considering the threat of buyers, threat of competitive rivalry, threat of new entrants, threat of substitutes and threat of suppliers.

10 Customer Analysis	Customer Insight	Obtain an understanding of the true customer value of the product by performing a customer segment and customer phase analysis.
	Competitor Analysis	Understand the true value the value proposition generates for the customer by identifying innovations along the product life-cycle.
	Consumer Trend Canvas	Gain a better understanding of the behavioural needs and desires of the customers by considering their consumption trends to inspire potential for innovation.
	Outcome Expectations	Identify the desired and undesired outcomes the customers and providers expect or are currently experiencing.
	Kano Model	Identify desired and undesired value proposition requirements of the customer by considering the degree of customer satisfaction in terms of the degree of product functionality.
	Ethnography	Obtain an understanding of the different customer segments by considering a demographic, geographic and physiological analysis.
	Empathy Canvas	Gain a better understanding of the customer by considering the following empathy factors: hearing, thinking, feeling and saying.
	Value Proposition and Customer Alignment	Align the value proposition with the profile of the customer by considering the customers JTBD, pains and gains as well as the value proposition's products/services, gain creators and pain relievers.
10	Technological and Product Development Analysis	Obtain an understanding of the technologies and value propositions within the white space opportunity by considering life-cycle and trend analysis.
10	Look across present market and customer boundaries	Consider looking across industries, strategic groups, chain of buyers, complementary value propositions and emotional orientations to identify new innovative concepts and blue oceans.
11	Design the CVP	Initiate the initial CVP design by considering the *what* and the *how* in terms of its offering scheme, access scheme, payment scheme and engineering specifications.
	Design the Profit Formula	Validate and assess the financial feasibility of the business model components by considering the simulated backward income statement and associated financial data.
12	Business Model Archetypes	Inspire innovation and idea generation for the design of new innovative business models by considering the 55 business model navigator patterns.
14	Storyline	Consider the various storyline components and techniques for a audience to make the business model prototype more tangible.
	New Strategic Canvas	Identify how the business model prototype's new value proposition's performance relates to other competitor's value proposition's performance and the customer importance in terms of price, product, brand, customer and life-cycle.
	GAP Analysis	Identify the gaps and hurdles that exist between the current state of the business model prototype and its ideal state by considering its 'as is' and 'to be' states.
	Business Impact and Uncertainty Tool	Gain an improved understanding of the uncertainty and impact surrounding the business model prototypes by considering their commercial uncertainty, risks, complexity to imitate and the future state of their offering and segments.
	Positioning	Generate potential long-term profitability and imitation complexity by exploiting those categories from the New Strategic Canvas where the competition was outperformed.
	Risk Assessment	Consider the risks surrounding the business model prototypes from a customer's, competitors and company perspective.
	SWOT Analysis	Assess the overall integrity of the business model prototype and its components by considering its strengths, weaknesses, opportunities and threats.
	Scenarios	Obtain an improved understanding of the business model prototypes, make it more tangible and force out of the box thinking by considering different scenarios and describing how each of the business model components will react within each scenario.
	Simulated Profit Formula	Consider how a simulated backward income statement and its associated ratios can: 1) Validate the profitability of the business model building blocks and 2) Compare the newly designed business models against each other.

Appendix T

Appendix T illustrates the tools found within Steps 1 and 10 in Sections T.1 and T.2 to T.5 respectively.

T.1 BMI Conditions

Table T1: Business Model Innovation Conditions

External Factors & Industry Transformation	
Value Chain	Have there been shifts in your value chain such as the introduction of "direct" models or value migration along the value chain?
New entrants	Are new market entrants introducing models that would disrupt your industry?
	Do you want to improve, disrupt or alter a settled market with an improved business model?
	Do you want to fulfil an existing yet unanswered market need?
Competitors	Do you see competitors introducing innovative propositions or models impacting your business?
Customer preferences	Are customer preferences for goods, services or channels changing?
Customer segments	Do you see new customer segments emerging that would require delivery of different products, services or delivery through new models?
Technology	Are there disruptive new technologies emerging?
Regulatory/legal	Has there been significant change to your regulatory environment, either by industry or geography that impacts your current business model?
Environment	Are there social and environmental sustainability factors that impact your current model?
	Do you need to advance, refine or guard the current business model against an altering environment?
	Do you want plan ahead for the future by investigating and assessing new business models that could possess the potential to substitute existing ones?
Internal Factors	
Product/service innovation	Are you taking a new technology, product or service to market that requires a new set of skills, capabilities and processes which leads to a new value proposition and pricing strategy?
Performance	Are you in a period of declining or negative growth relative to your industry?
	Does an emergency exists within your current business model?
Resource availability	Are you delivering economic returns that provide the financial resources to make bold moves?
	Can you leverage the right skills and capabilities?

(Source: Giesen *et al*., 2010; Osterwalder and Pigneur, 2010)

T.2 Competitor Analysis

Purpose: To set the stage on product characteristics and strengths/weaknesses; used later to spot innovation areas.

Methodology: Round-table discussion between project leader, developer and marketing.

Time requirements: Circa 2-3h discussion when information is accessible.

Preparation: Have financial performance e.g. turnover and margins and product information ready. (CAGR: Compound Annual Growth Rate)

How workshop is performed: Answer the questions after a discussion.

Product built-up	*"What are the main parts of the product?"*	
Product range	*"What different products are there?"* *"How do they differ in terms of output?"*	
Accessories	*"What main accessories are there?"*	
Substitutes	*"What are the main substitutes?"*	
Strengths compared to substitutes	*"What are the product's key strenghts compared to substitutes?"*	
Weaknesses compared to substitutes	*"What are the product's key weaknesses to substitutes?"*	
Life-cycle	*"Where in the life-cycle is the product?"*	
Commodity or differentiated product	*"To what extent is the product differentiated or a commodity"?*	
Market share	*"What is the product's market share?"*	
Financial status	*"What is the product's turnover?"*	
	"What is the turnover CAGR last 3 years?"	
	"What is the product's margin?"	
	"What is the margin CAGR last 3 years?"	

Figure T1: Product Characteristics Tool
(Source: Geterud & Tegern, 2012)

Purpose: To map and understand all current areas of application

Methodology: Round-table discussion between project leader, developer and marketing.

Time requirements: circa 1-3h discussion when application information is available, depending on the amount of different applications for the product.

Preparation:
1) Read about applications from competitors and market research.

How section is performed:
1) Answer the questions after a short discussion.

#	What is the application name?	How would you describe the application?	How is the marked of the application? (1-3: Low/Med/High)	Application fit? (1-3: Low/med/High)	Application attractiveness (M+F)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Figure T2: Overview of Applications Tool
(Source: Geterud & Tegern, 2012)

Purpose: To map and understand the competitive environment.

Methodology: Round-table discussion between project leader and marketing, together with market research.

Time requirements: Circa 2h discussion when competitor information becomes available.

Preparation: Read from competitor market research material.

How section is performed: Answer the questions after a short discussion.

Competitor Concentration	"Who are the competitors?"				
	"How large is the competitors' revenue?"				
	"Which market share do they have?"				
Competitor behaviours	"Which target customer segment do they have?"				
	"Which competing products do they have?"				
	"Which pricing strategy do they use?"				
	"Which distribution strategy do they use?				
	"How loyal are they're customers"				
Best practises	"Are they doing things we are not?"				
Strengths compared to competitors	"What are the products business units key strengths compared to competition products"				
Weakness compared to competitors	"What are the products business units key weaknesses compared to competition products"				
Barriers to entry	"Do we need to worry about any new entrants to the market"				
Supplier concentration	"Are suppliers a strong force in the industry?"				
Industry regulatory environment	"Are there any regulations which can play a vital role for the product?"				

Figure T3: Competitive Environment Tool
(Source: Geterud & Tegern, 2012)

Purpose: To understand the competitor's business model, set the stage for the project team and find initial innovation concepts. In addition, this workshop is the most open-minded where no guidance is given for the innovation which gives a very high-span in terms of possible innovations.

Methodology: Workshop

Time requirements: 3h preparation and 4h workshop.

Preparation: 1) Understand each of Osterwalder's 9 building blocks of a business model.
2) Prepare answers and ideas on which the current business model's most important features are in each building block in order to facilitate a slow discussion.

How workshop is performed:
1) Each participant is handed a set of yellow "As-is" post it-notes and is asked to identify each competitor's current most important features/content of the first building block, key partners. Each feature that is brought up must have a precise name/tagline, a small illustration (also intangible features) and bullet points to describe the most important features. The building block is assessed circa 10 min. If necessary emphasize the hints below if not printed on paper.
2) Each participant is then asked to explain their notes and thoughts.
3) The participants are then handed the green "To-be" post it notes and is asked to brainstorm possible future valuable partners illustrated by a name/tagline, picture and bullet points. Quantity is preferred before quality and the partners added value must not be great or clear. The to-be post-its are written during circa 10 min.
4) The "To-be" post-its are then explained by the author and valuable ideas are briefly elaborated on.
5) Step 1-4 is then repeated for all 9 building blocks, one at a time.

Figure T4: Competitor's Business Model Tool
(Source: Geterud & Tegern, 2012)

Purpose: To plot internal competitor performance in relation to customer importance in each segment to find the value propositions where additional value can be created or reduced.

Methodology: Workshop

Time requirements: 15min preparation and 2h workshop per customer.

Preparation: Print the category table and value proposition canvas graph for each customer.

How workshop is performed:
The workshop consists of five steps:
1) a) The customers must assess each generic sub-category, one at a time, and specify how this category is applied in the opportunity, e.g. deciding which product performance that is assessed. b) then assess the category according to importance (1-10) from a customer value point of view and c) assess and rank the internal performance (1-10) on each sub-category compared to competitors, where 10 is the competitors performing the best, i.e. 5 is "in-line" with competition. Do step a)-c) for each of the 23 categories. 2) Important and industry specific categories and sub-categories not covered by the list are added and assessed in the same way, this gives the current strategic canvas. 3) An explanation must be given for every sub-category as to why that specific customer importance and competitor performance ranking was given, after which the firm fills the potential areas within that sub-category where they can take action and capitalise. 4) The list of 23 (or more if categories added) must now be reduced to 8-10 categories. The 8-10 categories are found by first sorting all categories in order of importance for customer and labelling each category in descending order from 1 to 8/10. The 8-10 most important categories are the one of most potential of innovation. 5) The customer importance and competitor performance for each 8-10 categories are then plotted on the strategic canvas graph.

Category	Sub-category	Applied sub-category	Importance to customer (1: very low. 10: very high)	Competitors performance (1: very low. 10: very high)	Explanation	Potential action areas
Price	Purchase price					
	Life cycle costs					
Product	Product performance					
	Product range					
	Accessories					
	Design					
	Convenience/simplicity					
	Customization					
	Accessibility					
	Evaluation/Trial possibilities					
	Environmental friendliness					
	Fun					
Brand	Awarness/Familiarity					
	Status					
Customer	Cost-reduction for customer					
	Customer relationship					
	Service and instruction					
	Risk reduction					
Life-cycle	Delivery					
	Purchase price					
	Use					
	Maintenance					
	Disposal					
New Catergory	New sub-category 1					
	New sub-category 2					

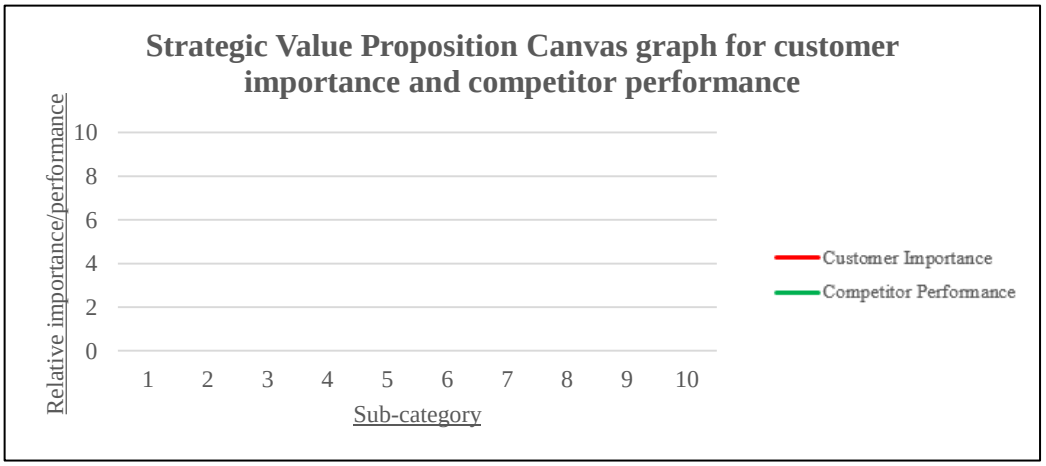


Figure T5: Competitor's Strategic Value Proposition Canvas (Source: Geterud & Tegern, 2012)

Purpose: To understand, comprehend and analyse Porter's Five Forces within the chosen white space opportunity.

Methodology: Workshop

Time requirements: 3h preparation + 1h workshop

Preparation:
1) Understand Porter's Five Forces and read related industry, market and analyst research articles.
2) Print templates.

How workshop is performed:
1) Indicate the relative threat level on the indicator bar for every threat source within each of the five forces.
2) The 'DF' above the boxes on the left of each threat source stands for 'Driving Factor'. These boxes must be ticked if the analyst determines the threat to be a driving factor for that particular force.
3) In order to encourage the analysis to be aligned with strategic action, the analyst must specify the crucial threats and opportunities that face the particular firm.

Figure T6: Porter's Five Forces Tool Description

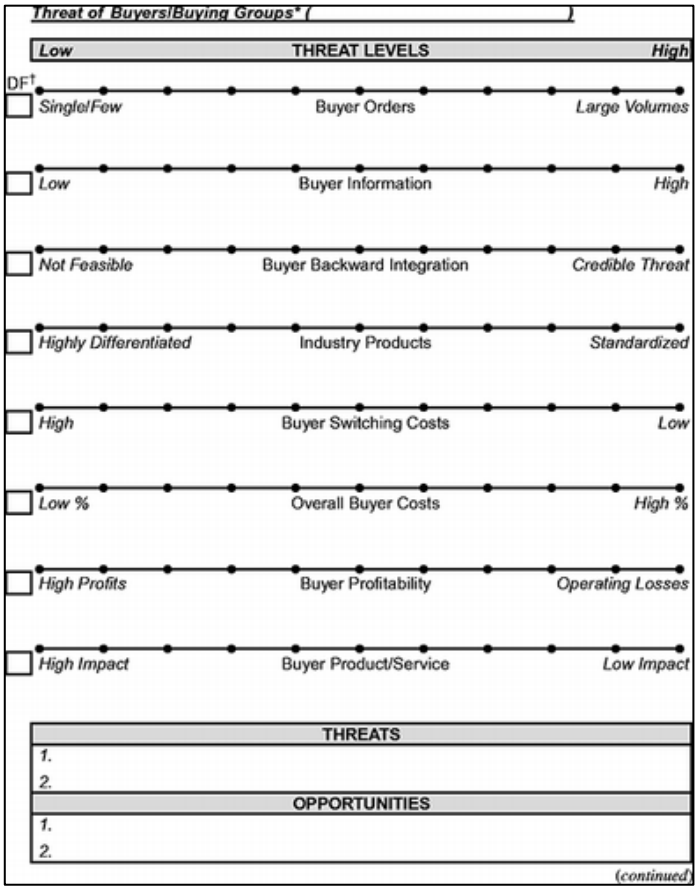


Figure T7: Threat of Buyers template
(Dobbs, 2014)

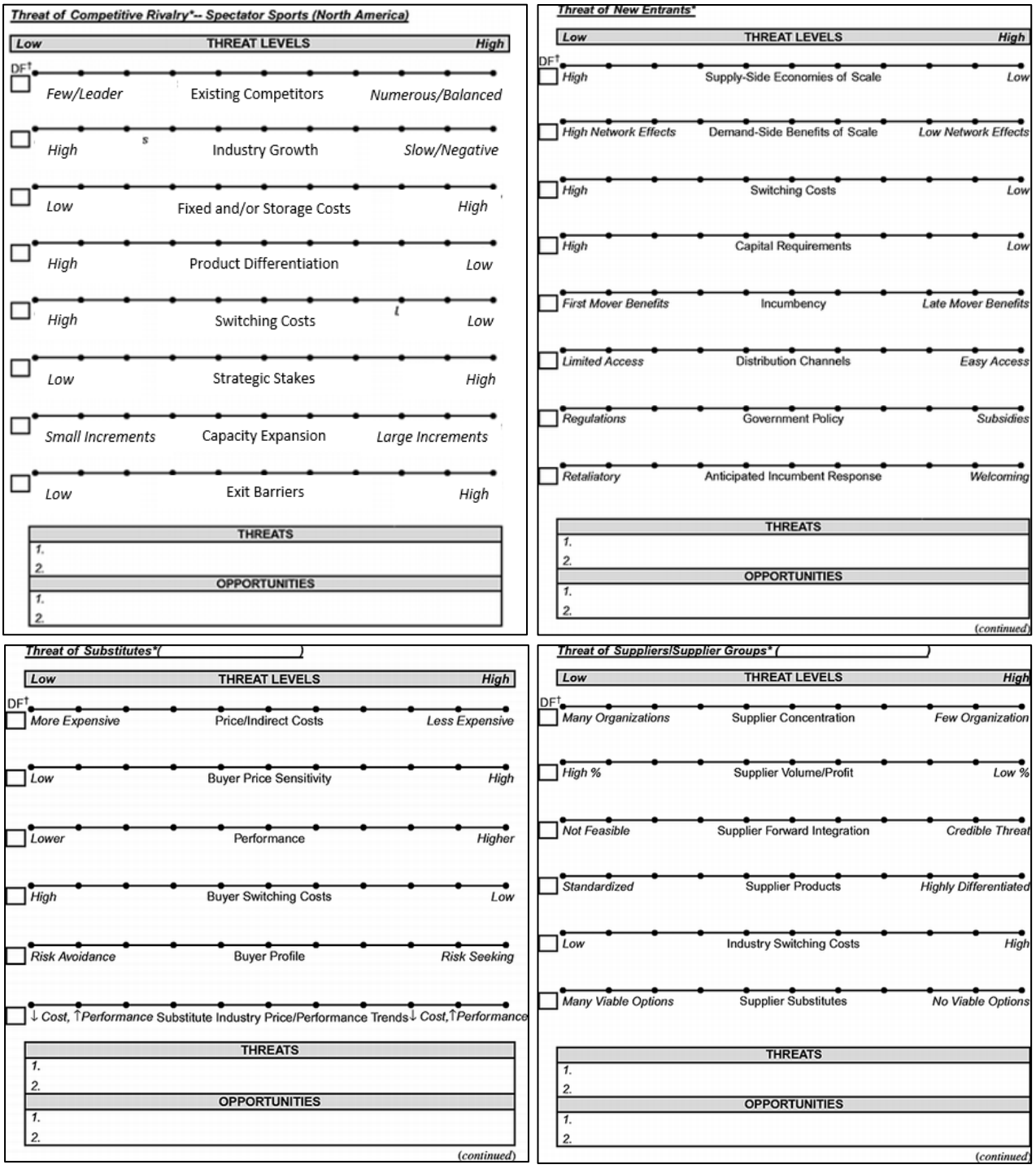


Figure T8: Threat of competitive rivalry, new entrants, substitutes and suppliers template (Dobbs, 2014)

T.3 Customer Analysis

T.3.1 Customer Insight Tool

Purpose: To understand the true customer value of the product.

Methodology: Customer interviews and visits to understand how they use the product. Round-table discussion of findings. Use the interview template provided on the following pages.

Time requirements: Recommended a minimum of 3 customer live-studies and interviews in each segment.

Preparation: 1) Prepare interview template.

How section is performed:
1) Start by assessing each customer segment and describe their respective market share, size, profitability, key needs and channels.
2) Continue by assessing key needs and causes of frustration in different phases of the life-cycle. In addition, assess the role of the actors in all phases (e.g. who is taking the purchase decision and who is main influencer?).

Figure T9: Customer Insight Tool description
(Source: Geterud & Tegern, 2012)

Customer groups			
Market share			
Size (Rev.)			
Rev. CAGR (3 years)			
Profitability			
Profitability CAGR (3 years)			
Distribution channels			
Key needs			
Frustration			

Figure T10: Customer segment analysis
(Source: Geterud & Tegern, 2012)

Channel			Customer phases				
			1. Awareness	2. Evaluation	3. Purchase	4. Delivery & installation	5. After sales
			How do customers become aware about the product and service in each channel? Which customer frustration occur in finding the products to choose from?	How do customers evaluate the product and service in each channel? Which frustration occur when evaluating?	How are customers buying the product/service in each channel? Which frustration occur while purchasing?	How do products get delivered to customers? Which customer frustration occur in delivery?	Which post-purchase customer support is requested and used? Are there any frustration occuring after sales?
Own	Direct	Sales force					
		Web sales					
	Indirect	Own stores					
Partner		Partner stores					
		Wholesaler					
			Who at the customer is searching for product/service?	Who is evaluating the product/service?	Who is taking the purchase decisions and who is directly and indirectly influencing?	Who is installing the product?	Who is using the product and affected by the after sales?
		Actor					

Figure T11: Customer phase analysis
(Source: Geterud & Tegern, 2012)

T.3.2 Buyer Utility Map Tool

Purpose: To assess and grasp the true customer value the product creates, to be able to find relevant and crisp innovations along the product life-cycle.

Methodology: Workshop

Time requirements: 3h preparation + 3h workshop

Preparation: 1) Read and assess the "job to be done" for each phase of the life-cycle a) -g) to assure understanding of questions and hints and have ideas to boost a slow discussion. Utility level refers to which "utility", i.e. value it creates for the customer. 2) Identify which of the utility levels 2.-8. (customer productivity, risk etc.) are the most important in each of the phases (a-g, awareness -disposal) and have the largest potential of improvement/innovation. Choose 2-4 utility levels in each phase giving a total of circa 20 "areas" of interest. Assess the customer insight and possible innovation concepts to be prepared on each area. 3) The utility levels and phases should then be highlighted with a red border and printed on an A2 print-out or several small A4 and put on a white-board. Participants can hence easy see which areas that have been chosen for closer assessment. Post-it notes and thick pens are brought to the workshop.

How workshop is performed:
The workshop consists of the questions regarding "the job to be done" and then the circa 20 question-areas regarding the specific customer utility that was chosen during each phase.
1) Start by assessing the actual "job to be done" Question 1), 1) customer insight) "what is the true job to be done within purchase?" where insights are drawn from customer experience. Then ask question 2) "how can this be better solved?" to find innovation concepts, hints can also be used for additional questions. This is done for all parts of the life-cycle of the product to set the stage and fast find innovation concepts. Question 1 is always answered by a round-table discussion to set the stage on each areas and share customer insights. Question 2 regarding innovation is then answered individually by having each participant illustrate their ideas/solutions/innovations concepts on a post-it stickers. Each participant is painting a picture and writing max 3 bullet points explaining each concept on the post-it and then put it on the A2 paper in the chosen question-area.
2) Continue by assessing each of the identified important utility levels, one at a time, in two steps: a) Assess customer insight by answering question 1 with round-table discussion. b) Find innovations by answering question 2 using post-it pictures. If necessary, give hints. c) General hint: Which industry is in the frontier of this value proposition within the phase and what can we learn from them? E.g. Rolex is state of the art in creating a status brand and we can learn a lot from their marketing work in terms of selecting where to show ads, how to design them and consistently keep the message.
3) Each innovation/concept is then assessed by having the participant explaining the thoughts behind their post-it. Each concept is then shortly elaborated and discussed.

Figure T12: Buyer Utility Map Tool description
(Source: Geterud & Tegern, 2012)

Utility levels	Examples	Questions	a) awareness & triability		b) Specifications & selection		c) Delivery & installation	
			1) Costumer insight	2) Solution/innovation concept	1) Costumer insight	2) Solution/innovation concept	1) Costumer insight	2) Solution/innovation concept
			Hints:		*Hints:*		*Hints:*	
1. The job to be done	Rolls-Royce manufactory	1) What is the true job to be done? 2) How can it be better solved?						
2. Customer productivity	Automation industry	1) How and when is the product affecting customer's productivity in each phase? 2) How can it be increased?						
a) Product performance	Pc Sector	1) How is the customer using the product performance? 2) Which performance does the customer need more/less or other of?						
3. Convenience / Simplicity	SeniorPhone, ATM	1) When and why does frustration occur? 2) How can it be reduced or eliminated?						
a) Customization	Tailored Products	1) Which type of customization is the customer in need of? 2) How can it be made more accessible?						
b) Accessibility	Making Products available	1) How accessible is the product offering? 2) How can it be made more accessible?						
4. Risk reduction	Insurance Companies	1) Which customer's risks occur in each phase? 2) How can they be reduced or eliminated (look at other industries being prominent at risk reduction)						
5. Fun & Image	Disney	1) How is product image expressed? 2) How can it be enhanced?						
a) Newness	Cell Phones	1) Is the product regarded as new? 2) How can the experienced newness be increased?						
b) Design	Fashion and consumer electronics	1) How is the product design perceived in each Phase? 2) How can it be made more distinct or modified to create a higher value?						
c) Brand/Status	Rolex and skateboarder outfit	1) Which brand/status signs are as important for the customer? Why they are important and which does the product currently have? 2) How can the product offering be perceived as higher status?						
6. Price	Ryanair	1) Which aspects is creating a possibility to increase price and which aspects are not worth paying for? 2) How can these aspects be created?						
7. Cost reduction	Helps customers to reduce costs	1) What incur costs for the consumer? 2) How can these factors i. e. costs be reduced?						
8. Environmental friendliness	McDonalds recycling	1) How does the product affect the environment? 2) How can this impact be reduced?						

Figure T13: Buyer Utility Map Tool Part 1
(Source: Geterud & Tegern, 2012

Utility levels	Examples	Questions	d) Use		e) Supplements		f) Maintenance & repair		g) Disposal	
			1) Costumer insight	2) Solution/ innovation concept	1) Costumer insight	2) Solution /innovation concept	1) Costumer insight	2) Solution/ innovation concept	1) Costumer insight	2) Solution/ innovation concept
			Hints:		Hints:		Hints:		Hints:	
1. The job to be done	Rolls-Royce manufactory	1) What is the true job to be done? 2) How can it be better solved?								
2. Customer productivity	Automation industry	1) How and when is the product affecting customer's productivity in each phase? 2) How can it be increased?								
a) Product performance	Pc Sector	1) How is the customer using the product performance? 2) Which performance does the customer need more/less or other of?								
3. Convenience / Simplicity	SeniorPhone, ATM	1) When and why does frustration occur? 2) How can it be reduced or eliminated?								
a) Customization	Tailored Products	1) Which type of customization is the customer in need of? 2) How can it be made more accessible?								
b) Accessibility	Making Products available	1) How accessible is the product offering? 2) How can it be made more accessible?								
4. Risk reduction	Insurance Companies	1) Which customer's risks occur in each phase? 2) How can they be reduced or eliminated (look at other industries being prominent at risk reduction)								
5. Fun & Image	Disney	1) How is product image expressed? 2) How can it be enhanced?								
a) Newness	Cell Phones	1) Is the product regarded as new? 2) How can the experienced newness be increased?								
b) Design	Fashion and consumer electronics	1) How is the product design perceived in each Phase? 2) How can it be made more distinct or modified to create a higher value?								
c) Brand/Status	Rolex and skateboarder outfit	1) Which brand/status signs are as important for the customer? Why they are important and which does the product currently have? 2) How can the product offering be perceived as higher status?								
6. Price	Ryanair	1) Which aspects is creating a possibility to increase price and which aspects are not worth paying for? 2) How can these aspects be created?								
7. Cost reduction	Helps customers to reduce costs	1) What incur costs for the consumer? 2) How can these factors i.e. costs be reduced?								
8. Environmental friendliness	McDonalds recycling	1) How does the product affect the environment? 2) How can this impact be reduced?								

Figure T14: Buyer Utility Map Tool Part 2
(Source: Geterud & Tegern, 2012

T.3.3 Consumer Trend Canvas Tool

Purpose: To obtain an improved understanding of customer behavioural needs and desires which are gained through an analysis of consumption trends. Expectation gaps between the customers actual want and that of which do not currently possess are discovered, therefore inspiring innovation potential.

Methodology: Workshop

Time requirements: 25min

Preparation:
1) Do research on current consumers in order to identify a consumer trend. Specify the trend in the table below.
2) Obtain a large sample of customers currently situated within the specific white space opportunity, along with employees from various firm departments.
3) Print the Consumer Trend table below for each participant.

How workshop is performed: A round the table discussion and brainstorming session is held in order to address the questions in the table.

Action	Canvas Component	Question	Answer
Analyse	Basic Needs	What deep consumer needs and desires does this trend address?	
	Driver of Change	Why is this trend emerging now?	
		What is changing?	
	Emerging Consumer Expectations	What new consumer needs, wants and expectations are created by the mentioned changes above?	
		Where and how does this trend satisfy them?	
	Inspiration	How are other businesses applying this trend?	
Apply	Innovation Potential	How and where could you apply this trend to your new business?	
	Who	Which new customer groups could you apply this trend to?	
		What would you have to change?	
Identify Innovation Concepts	Company Innovation	What innovative ideas and concepts can be generated from the answers above?	

Figure T15: Consumer Trend Canvas Tool

T.3.4 Outcome Expectations Tool

Purpose: Identifying the desired and undesired outcomes of a current or potential value proposition solution as expected or currently experienced by the customer and provider.

Methodology: Workshop

Time requirements: 15min preparation + 30min workshop per participant

Preparation:
1) Gather new/existing customers as well as firm employees from different departments.
2) Print the opportunity grid table for every participant.

How workshop is performed:
1) The customers fills in the desired and undesired segments of the table first by asking themselves the following questions:

    1.1) Customer & Undesired: What undesired outcomes are you as a customer experiencing from the use of the current solution? What undesired outcomes do you expect not be part of any current, related or future solution within this market?
    1.2) Customer & Desired: What desired outcomes are you as a customer experiencing from the use of the current solution? What desired outcomes do you expect be part of any current, related or future solution within this market?

2) The firm employees fill in the desired and undesired segments of the table secondly by asking themselves the following questions:

    2.1) Provider & Undesired: What undesired outcomes do you as a firm employee and provider expect not be part of any current, related or future solution within this market?
    2.2) Provider & Desired: What desired outcomes do you as a firm employee and provider expect to be part of any current, related or future solution within this market?

	Customer	**Provider**
Undesired		
Desired		

Figure T16: Outcome Expectations Tool

T.3.5 Kano Model Tool

Purpose: To determine wanted and unwanted product requirements in terms of customer satisfaction and product functionality.

Methodology: Workshop

Time requirements: 30min workshop

Preparation:
1) Obtain a large sample of customers currently situated within the specific white space opportunity using competitor products.
2) Print the Kano table below.

How workshop is performed:
The customers must fill in the appropriate Kano table by asking themselves the following questions:

- High Customer Satisfaction & Poor Product Functionality: Which product requirements and functions are you as a customer very satisfied during poor product functionality?
- High Customer Satisfaction & Excellent Product Functionality: Which product requirements and functions are you as a customer very satisfied during excellent product functionality?
- Low Customer Satisfaction & Poor Product Functionality: Which product requirements and functions are you as a customer very dissatisfied with during poor product functionality?
- Low Customer Satisfaction & Excellent Product Functionality: Which product requirements and functions are you as a customer very dissatisfied during excellent product functionality?

	Poor Product Functionality	**Excellent Product Functionality**
High Customer Satisfaction	Latent Requirements	Customer Delight
Low Customer Satisfaction	Customer Dissatisfaction with missing or withheld functions	Customer Dissatisfaction with Provided Functionality

Figure T17: Kano Model Tool

T.3.6: Ethnography Tool

Purpose: To obtain qualitative data by performing an ethnography study, in particular a demographic, geographic and physiological analysis.

Methodology: Workshop

Time requirements: 15min workshop

Preparation:
1) Obtain a large sample of new/existing customers currently situated within the specific white space opportunity.
2) Print the demographic, geographic and physiological table templates for every customer.

How workshop is performed:
Each customer must fill in the appropriate information within each column in the demographic, geographic and physiological table templates.

Demographic analysis

	Gender	Age	Income	Race	Education	Family size
Customer 1						
Customer 2						
Customer 3						
Customer 4						
Customer n						

Geographic analysis

	Population density	Average weather conditions (All 4 seasons)	Location
Customer 1			
Customer 2			
Customer 3			
Customer 4			
Customer n			

Physiological analysis

	Attitude	Values	Lifestyle	Personality
Customer 1				
Customer 2				
Customer 3				
Customer 4				
Customer n				

Figure T18: Ethnography Tool

T.3.7: Empathy Canvas Tool

Purpose: To allow the firm to climb into the 'customer's shoes' in order to gain a better understanding of how consumers feel, think, talk, see and hear about a current solution.

Methodology: Workshop

Time requirements: 1h

Preparation:
1) Gather employees from different departments within the firm.
2) Print the table below for each participant.

How workshop is performed:
1) Each participant must answer every question, from the viewpoint of the customer, within the table below with regards to customers utilising current competitor solutions.

Empathy Factor	Question	Answer
Hearing	What does the customer hear?	
	What does the customer's friends say?	
	What does the customer's influencers say?	
Thinking and feeling	How does the customer think and feel?	
	What really counts for the customer?	
	Which 8 aspirations worry's the customer?	
Seeing	What does the customer see in general?	
	What does the customer see in terms of the environment?	
	What does the customer see in terms of his/her friends?	
	What does the customer see in terms of what the market offers?	

Figure T19: Empathy Canvas Tool

T.3.8 Value Proposition and Customer Alignment Tool

Purpose: To align the value proposition with the customer profile.

Methodology: Workshop

Time requirements: 15min preparation + 1h workshop

Preparation:
1) Obtain a large sample of customers currently situated within the specific white space opportunity, along with employees from various firm departments.
2) Print the Customer Profile Table for each customer and the Value Proposition Profile Table for each employee.

How workshop is performed:
1) The customers fill in the Customer Profile Table firstly. All answers must be ranked down from Important to Insignificant.
2) The employees fill in the Value Proposition Table secondly. All answers must be ranked down from Essential to Nice to Have.
3) The firm must try to obtain a 'problem-solution fit': The features of the value proposition map matches the characteristics of the customer segment profile.
4) This step serves as an additional point to consider for the firm. The match in step 3 above can be tested in the market. When the market validates this match a product-market fit is achieved due to the generated customer value.

Customer Profile

Profile Component	Question	Answer
Customer Jobs	What job do you as a customer want to get done?	
Gains	What positive outcomes and benefits do you as customer require, expect, desire or would be surprised by before, during or after getting the job done?	
Pains	Which negative aspects do you as a customer try to avoid before, during or after getting the job done?	

Value Proposition Profile

Value proposition Component	Question	Answer
Products and Services	Which product and services do we as a firm require in order to address the customer pains and gains?	
Gains Creators	Which positive outcomes and benefits would the products and services create for the customer gains?	
Pain Relievers	How would the product and services alleviate customer pains before, during and after getting the job done	

Figure T20: Value Proposition and Customer Alignment Tool

T.4 Technological and Product Development Analysis Tool

Purpose: To understand the product and technological lifecycles, as well as product and technological trends drivers and barriers.

Methodology: Round-table discussion between project leader and marketing, together with market research.

Time requirements: When market knowledge is gathered circa 2h discussion.

Preparation: Read market research as well as industry, technology and product articles.

How section is performed:
Lifecycle Analysis:
1) Identify different technologies and products currently being used within the white space opportunity.
2) Identify the generic lifecycle phase (awareness, market share, sales, customer retention or transition) that product or technology is currently situated in.
3) Identify whether the product or technology is new or old. It is new if it lies in any one of the following phases: Awareness, market share, sales. It is classified as old if it lies the customer retention or transition phase.
4) State whether the position of the product and technology is advantageous or disadvantageous in terms of the opportunity and give an explanation. The research done during the preparation phase can assist in making this decision.

Trend Analysis:
1) If possible, identify different technological and product trends currently found within the white space opportunity.
2) Identify and assess which drivers could be utilised to boost your future market, or is currently boosting competitor markets.
3) Identify and assess which barriers can or currently do threaten market growth or even cause a decline.
4) Specify the impact these trends, drivers and barriers could have on a business or is currently having on competitor business models.

Lifecycle Analysis

Category	Name	Current generic lifecycle phase	New/Old Technology or Product	Advantageous or Disadvantageous & Explanation
Technological				
Product				

Trend Analysis

Category	Trend	Driver	Barrier	Impact
Technological				
Product				

Figure T21: Lifecycle and Trend Analysis description and tool

T.5 Look across present market and customer boundaries.

Purpose: To find innovation concepts, new terms of competition or so called "blue oceans" by looking across industries, strategic groups, buyer groups, complementary products and emotional orientation.

Methodology: Workshop

Time requirements: 3h preparation and 3h workshop.

Preparation: Preparation consists of understanding the workshop, the purpose and assess all questions. By having assessed all questions the workshop-leader can easier help a stuck discussion if needed. Additional reading regarding the "six paths framework" is found in the "Blue Ocean Strategy" (Kim & Mauborgne, 2005c).

How workshop is performed:
1) Print the questions to each participant.
2) Ask the questions and facilitate a discussion regarding each path. When needed give hints or own ideas. Each good idea should be elaborated on briefly but not discussed into too much detail. Quantity goes before quality.

Figure T22: Six Paths tool description
(Source: Geterud & Tegern, 2012)

Path	Explanations and examples	*Questions*	Answers
Look *across* alternative industries	The purpose of this question is to look beyond the traditional competition of competitors substitutes. By identifying also the alternatives, novel but powerful strategies might arise through combining the advantages of each alternative and eliminating the not-so-important parts. Examples: Car is an alternative to Airplane (the common purpose is to get from A to B). Restaurant is an alternative to Cinema (the common purpose is to enjoy a night out).	Which alternatives do your customers have except for choosing between you, competitors and conventional substitutes? What are the alternative solutions to our product and offering? Why do customers trade across them? How can we combine the advantages of each of the alternatives and incorporate into one offer?	
		Hint: *Try to understand what purpose the product offering is really serving. What other ways of serving this purpose are there? How do potential customers who are not customers today fulfilling the purpose?*	
Look at strategic groups *within* industries	Strategic groups are groups of companies within a given industry, that compete on similar terms. The purpose of this question is to combine the advantages of predominant strategic groups in order to come up with a new one. Examples: The fitness club *Curves* combine the dicipline and encouragement of Health Clubs with the low-cost, convenience and non-thretening atmosphere of Home Training Programs. The *Champion* combines the low-cost of prefabricated housing with the individuality, high-quality image and customization ability of on-site developers (through modularity and a large but standardized range of accessories).	Which are the strategic groups in the industry? What are the pros and cons of each strategic group? How can we combine the decisive advantages of different strategic groups to create a new one?	
		Hint: *See what terminology is being used when competitors are presenting their products/services and their "unique" offerings. Look at companies within several strategic groups. Consider how we can take the strongest parts of each positioning and reduce/eliminate the not-so-strong parts, in order to create a strong, cost-effective offering.*	
Look across the chain of buyers	For a given purchase there is often not only one buyer, but a chain of buyers and influencers. These individuals have shifting motives for a purchase, but companies within an industry often tend to focus on one and the same target buyer. By refocusing on the whole chain, we can tweak the offering and offer unique customer value, thereby differetiating us from competitors. Examples: *Canon* created the office desktop printer by focusing on and targeting corporate users, not the corporate purchaser. *SAP* became successful by focusing on the corporate purchaser, not the functional user.	What is the chain of buyers in our industry? Which buyer group does our industry typically focus on? If we shifted the buyer group of the industry, how could we unlock new value?	
		Hint: *Look at typical stakeholders in customer companies. Who is the purchaser, designer, influencer, user, end user, decision maker, owner... How do their motives and rationales differ and what do each stakeholder value? Look both across and within customer segments.*	

Figure T23: Six Paths Tool Part 1

(Source: Geterud & Tegern, 2012)

Path	Explanations and examples	*Questions*	Answers
Look across complementary products and service offerings	Products are often used in conjunction with other products and services. By putting oneself in the shoes of the user, one can find complementary products or services that would solve problems related to the use, augment the user experience and hence increase value. Examples: *IKEA* has baby sitting facilities in their stores (problem: to go to IKEA requires having to solve the baby sitting problem). Vacuum cleaners free of cleaning bags eliminate the inconvenience of having to change the bag.	What is the context in which your product or service is used? What happens before, during, and after? Can you identify the pain points? How can you eliminate these pain points through a complementary product or service offering?	
		Hint: *Go through the life cycle of a purchased good and plot where inconvenience occurs. Eliminate/reduce this inconvenience.*	
Look across functional and emotional appeal to buyers	Competition within an industry tends to converge on one of two possible sources of appeal: functional or emotional. By challenging the predominant functional-emotional appeal of the industry, a company can often find new market space. Examples: Emotional-to-functional: *HQ House* hair salons simplified the emotional but timely "ritual" of haircutting in Japan by eliminating hot tea serving, shoulder rubs and the use of several warm towels, therby offering a quick wash and haircut to a significantly reduced price (and cost). *Starbucks* shifted the functional focus of commodity coffee sales into the experience of enjoying coffee in an emotional atmosphere.	Does your industry compete on functionality or emotional appeal? If you compete on emotional appeal, what elements can you strip out to make it functional? If you compete on functionality, what elements can be added to make it emotional?	
		Hint: *Emotionally oriented industries offer many extras that add price without enhancing functionality. Reducing/eliminating those extras may create a fundamentally simpler, lower-priced, lower-cost business model that customers would welcome. Conversely, functionally oriented industries can often revive commodity products by adding elements of emotional appeal.*	
Look across time and act on trends	By identifying and acting on macro trends, a company can gain a head start over its competitors. The intention here is to not only project trends themselves, but to generate business insights into how the trend will change value to customers and impact the company's business model.	What trends have a high probability of impacting your industry, are irreversible, and are evolving in a clear trajectory? In what ways can different, plausible evolutions of these trends impact your industry in the coming time? Given this, how can you open up unprecedented customer utility?	
		Hint: *One way of breaking down trends is by human, technical and market trends. Assess how the industry has changed over the last 5-10 years, take into consideration current trends also those not yet affecting the industry. Extrapolate trends and assess the plausible impact of each scenario. Generate concepts for how the companyt could benefit from these trends, should they continue*	

Figure T24: Six Paths Tool Part 2
(Source: Geterud & Tegern, 2012)

Appendix U

Appendix U provides the tools found within the internal components of Step 11.

U.1 Design the CVP

U.1.1 Offering, access and payment scheme design

Purpose: To consider the *what* and the *how* concerning the CVP. More specifically to start thinking at a basic level of the CVP offering, access and payment scheme.

Methodology: Project team brainstorming session.

Time requirements: 2h preparation and 2h workshop

Preparation:
1) Gather all team members.
2) The workshop facilitator and team members must review the understanding phase.
3) Print CVP levers for every participant.

How workshop is performed:
1) A brainstorming session should be held between all team members whereupon the answers and lever levels are decided upon.
2) Another brainstorming session follows between all team members where additional questions and levers are generated.
3) Step 1 above is repeated for Step 2.

Figure U1: CVP Tool description

CVP Offering Questions	Answer
Does the solution solve the customer segment's JTBD?	
Does the solution provide the appropriate trade-offs?	
Are the most vital elements that are provided to the customer good enough?	
Will the solution be a product, service or a mixture of both?	
Will the offering be transparent and simple or be intricate and wide-ranging?	

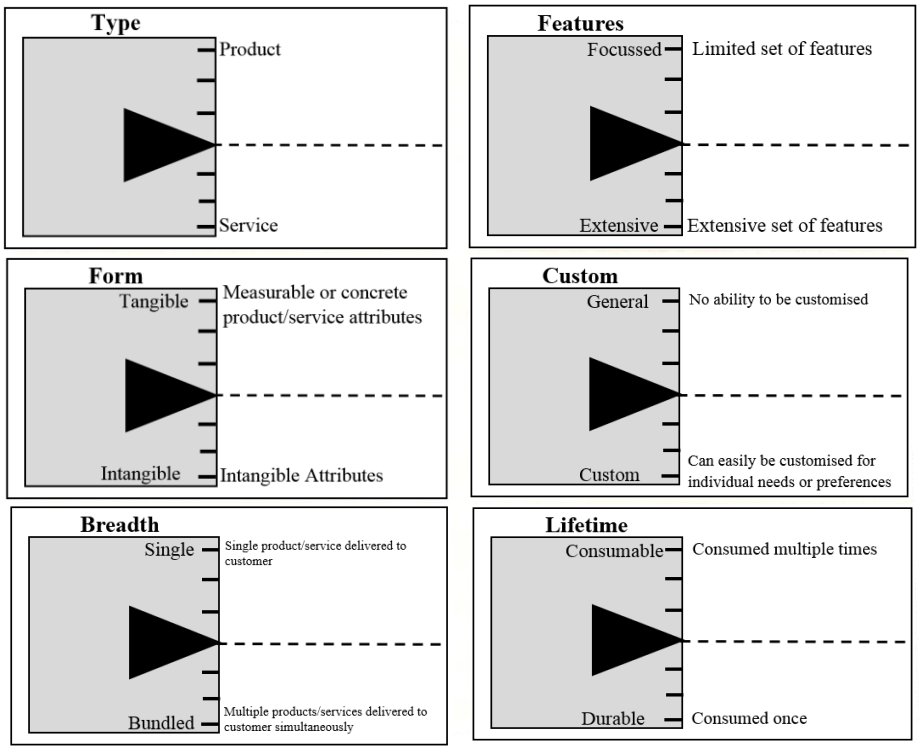


Figure U2: CVP Offering Questions and Levers

CVP Access Questions	Answer
How in depth will the customer support be?	
Will the company deliver the offering, hire another company to deliver it, or must the customer collect the offering?	
How often does the customer have to buy the solution?	

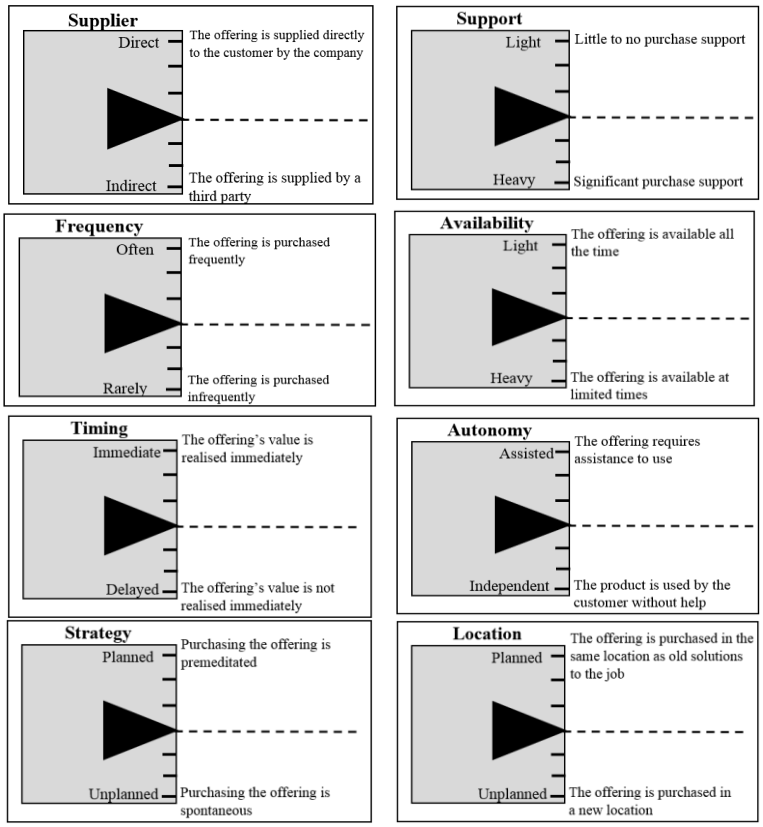


Figure U3: CVP Access Questions and Levers

CVP Payment Schedule Questions	Answer
What will the payment regime be, fixed or variable?	
Will revenue be collected in instalments or in one payment?	
What will the customer be paying for? (Examples: per unit, per use or every time additional value is added?	
When will the customer have to pay? (Examples: beginning, end, , subscription)	
What type of payment will be required? (Examples: Exchange, cash, finance, credit)	

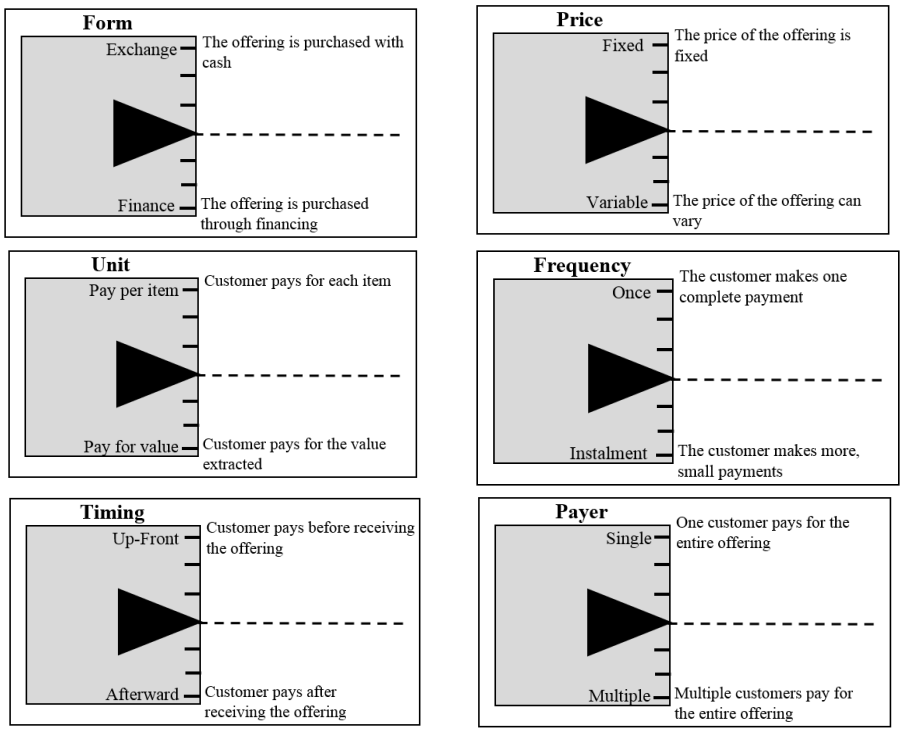


Figure U4: CVP Payment Scheme Questions and Levers

U.1.2 Generate offering specifications

Purpose: Generate engineering specifications for the offering by using the House of Quality tool.

Methodology: Workshop

Time requirements: 2h preparation + 2h workshop

Preparation:
1) Review Step 10 with a special focus on the competitor and customer analysis.
2) Print the House of Quality template.

How workshop is performed:
1) Insert the customer requirements outlined in red. Consider the Outcome Expectations and Kano Methodology tools for additional assistance.
2) Insert the customer importance ratings outlined in orange. Consider the value proposition canvas for additional assistance.
3) Insert the technical requirements outlined in yellow. There should be at least one technical requirement for each customer requirement.
4) Insert the relationship weighting factors into the interrelationship matrix outlined in green.
5) Insert the positive and negative factors into correlation matrix outlined in blue.
6) Complete the competitor evaluation and improvement section outlined in pink.
7) Complete the specification section outlined in brown at the bottom of the template. A special focus should be given to the target benchmark. Since no product has been generated as yet, the 'Our Company' row cannot be completed.

Figure U5: House of Quality Tool description

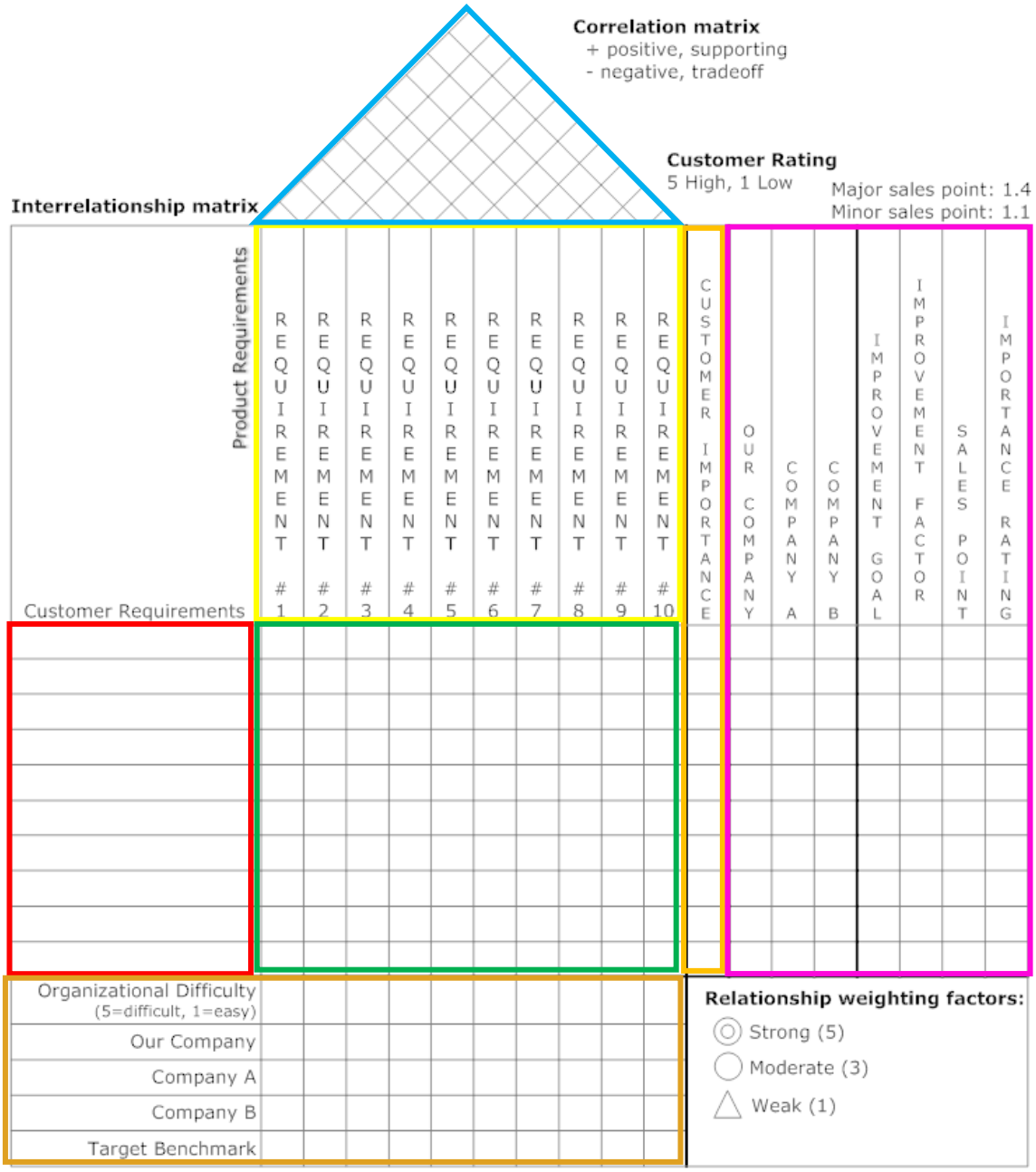


Figure U6: House of Quality Tool

U.2 Design the profit formula

U.2.1 Estimate the Gross Profit

U.2.1.1 Estimate the quantity of units to be sold

Table U1: Questions and answers required to calculate quantity of units to be sold

Quantity component questions	**Answer**
What number of clients will the organisation have?	
What number of units per client per transaction will the organisation sell?	
What number of transactions can the organisation expect?	

(Source: Johnson, 2010b)

Equation U1 can be generated below by multiplying the answers from Table U1 together in order to obtain the quantity of units to be sold.

$$Quantity = (Number\ of\ clients) \times (Number\ of\ units\ per\ client) \times (\ Number\ of\ transactions) \quad \text{(U1)}$$

U.2.1.2 Estimate Total Cost of Goods Sold

Table U2: Questions and answers required to calculate the cost per unit

Cost component questions	**Answer**
What is the estimated cost of direct labour per unit?	
What is the estimated cost of direct materials per unit?	

The cost per unit can be estimated by adding the above two cost components in Equation U2 below.

$$Cost\ per\ unit = \ Direct\ labor\ cost\ per\ unit + Direct\ material\ cost\ per\ unit \quad \text{(U2)}$$

Now the estimated Cost of Goods Sold can calculated in Equation U3 below by multiplying Equation U1 and Equation U2 together.

$$Total\ Cost\ of\ Goods\ Sold = Quantity\ \times Cost\ per\ unit \quad \text{(U3)}$$

U.2.1.3 Estimate Total Sales

Table U3: Assessing competitor's prices

Price component question	**Answer**
List the selling prices of each competitor's product.	Competitor 1: Competitor 2: Competitor 3: Competitor n:
Calculate the average selling price of all the listed prices above.	
If available, state the mark-up percentages currently used by each competitor.	Competitor 1: Competitor 2: Competitor 3: Competitor n:
Calculate the average mark-up percentage of all the listed mark-ups above.	

The selling price per unit can be estimated on its own by analysing the selling prices in Table U3 or calculated in Equation U4 below by using the mark-up percentage in Equation U5 if a mark-up percentage was to be estimated.

$$Selling\ price\ per\ unit = Cost\ per\ unit\ \times Markup\ percentage \quad \text{(U4)}$$

Where the mark-up percentage is defined by Equation U5 below.

$$Markup\ percentage = \frac{Selling\ price\ unit}{Cost\ price\ per\ unit} \quad \text{(U5)}$$

The total estimated sales can be calculated in Equation U6 below by multiplying Equation U1 and Equation U4 together.

$$Total\ Sales = Quantity\ \times Selling\ price\ per\ unit \quad \text{(U6)}$$

H.2.1.4 Calculate the estimated gross profit.

The estimated gross profit can be calculated below in Equation U7 by subtracting Equation U3 from Equation U6.

$$Gross\ Profit = Total\ Sales - Total\ Cost\ of\ Goods\ Sold \quad \text{(U7)}$$

U.2.2 Calculating the Target Unit Margin

Table U4: Estimate the required Net Profit.

Net Profit estimation question	Answer
How big does the aggregate net profit need to be in three to five years for this opportunity to be worthwhile?	

Table U5: Define interest tax percentage and interest expense

Accounting factor questions	Answer
What is the income tax expense percentage in the country?	
Will a loan be taken out? If so, state the annual/monthly interest expense.	

A formula for Net Profit is shown below in Equation U8 using the income statement components earnings before tax (EBT) and income tax expense percentage.

$$Net\ Profit = EBT - (EBT \times Income\ tax\ expense\ percentage) \quad \text{(U8)}$$

Taking EBT out as a common factor in Equation U8 results in Equation U9 show below.

$$Net\ Profit = EBT \times (1 - Income\ tax\ percentage) \quad \text{(U9)}$$

By rearranging Equation U9 it becomes Equation U10.

$$EBT = \frac{Net\ Income}{1 - Income\ tax\ percentage} \quad \text{(U10)}$$

Equation U10 can be related to EBIT by using Equation U11 below.

$$EBIT = EBT + Interest\ Expense \quad \text{(U11)}$$

From Equation U11 and U12 the target margin can now be calculated in Equation U11 below as given by Johnson (2010b).

$$Target\ unit\ margin = \frac{EBIT}{Quantity\ of\ units} \quad \text{(U12)}$$

Additionally, the final component of the income statement can be calculated below in Equation U13 by subtracting Equations U7 and U11.

$$Operating\ Expenses = Gross\ Profit - EBIT \quad \text{(U13)}$$

U.2.3 Ratio Analysis

Various ratios are listed and briefly described below that will assist the profitability and solvency of the business for a given income statement. (CFA, 2015)

U.2.3.1 Net Profit Margin

The net profit margin is the ratio of net profit to sales shown below in Equation U14.

$$Net\ profit\ margin = \frac{Net\ Profit}{Sales} \tag{U14}$$

Equation U14 above shows the amount of money that is translated directly into net profit from the amount of sales made. The project team should be worried if the net profit margin is too low.

U.2.3.2 Gross Profit Margin

The gross profit margin is ratio of gross profit to sales shown below in Equation U15.

$$Gross\ profit\ margin = \frac{Gross\ Profit}{Sales} \tag{U15}$$

Equation U15 can be increased by either increasing sales by raising the selling price, or by decreasing cost of goods sold by decreasing the cost per unit. The ability to raise the price can be inhibited by the surrounding competition. If a company has a sustainable competitive advantage it will be able to charge more for its products leading to a higher gross profit margin (CFA, 2015). Like Equation U14, the project team should be worried if the gross profit margin is too low.

U.2.3.3 Operating Profit Margin

The operating profit margin can be defined as the ratio of operation profit, or EBIT, to sales. This is illustrated below in Equation U16.

$$Operating\ profit\ margin = \frac{EBIT}{Sales} \tag{U16}$$

Like Equations U14 and U15, the operating profit margin shows the amount of money that is translated from sales directly into EBIT. (CFA, 2015) states that an operating profit margin which is increasing at a faster rate than the gross profit margin can indicate increased control over operating costs.

U.2.3.4 Interest Coverage Ratio

The interest coverage ratio is defined as the ratio of EBIT to interest expense, shown below in Equation U17.

$$Interest\ coverage = \frac{EBIT}{Interest\ Expense} \tag{U17}$$

The interest coverage ratio is a type of solvency ratio. The higher the ratio, the less likely it is that the company in question will default on its loan payments.

U.2.4 Microsoft Excel income statement simulation

Table U6: Input information

Input Information	**Answer**
Number of Clients	
Number of Units per Client	
Number of Transactions per Client	
Sales Price per Unit	
Cost per Unit	
Required Net Profit	
Income Tax Percentage	
Interest Expense	
Mark-up Percentage	

Table U7: Simulated Income Statement

Income Statement Components	**Total**	**Common Size**
Sales		
Cost of Goods Sold		
Gross Profit		
Operating Expenses		
Salaries and wages		
Rent		
Repairs and maintenance		
Insurance		
Travel		
Telephone		
Office Supplies		
Advertising and Marketing		
Training and Development		
Bank Charges		
Depreciation		
Other		
EBIT		
Interest Expense		
EBT		
Income Tax Expense		
Net Profit		

Table U8: Simulated output information

Output Information	**Answer**
Target Unit Margin	
Net Profit Margin	
Gross Profit Margin	
Operating Profit Margin	
Interest Coverage Ratio	

U.2.5. Determine the Resource Velocity

Table U9: Core Resource Velocity Questions

Resource Velocity Questions	**Answer**
How many units can the business model manufacture, develop, design, pay for, transport, repair, sell and store over a given period such as a month or year?	
How will the required amount of unit production be achieved through the support of operating expenses, related resources and other processes?	

Appendix V

Appendix V provides the tools found within Step 14.

V.1 Storyline

Purpose: To make the business model prototype tangible and to introduce it to audiences in an engaging manner.

Methodology: Workshop

Time requirements: The time requirements depend on which technique is chosen to tell the story and therefore it can vary.

Preparation: Print the storyline table and understand who the audience will be.

How workshop is performed:
1) Choose which technique is appropriate according to the audience.
2) Describe the current situation or 'as-is' phase with the understanding of the customer being the main focus. Highlight frustrations which the customers experience. (E.g. Constant breakdowns)
3) Describe the perfect 'To-be 'scenario taking into account the core principle of the business model prototype by answering 'What if…?' (E.g. The customers receive high quality durable products).
4) Describe the relative market position the 'To-be 'scenario would lead to.
5) Describe how the market position would be achieved, focusing on the different business model prototype building blocks.

Story components and techniques	Comic Strip	Talk & Image	Video Clip	Role Play
Technique Description	Tell the story using cartoon images	Tell the story using one or several images	Tell the story using video to blur lines between reality and fiction	Have people play the story's roles to make each scenario real and tangible
When to use technique	Reports or broadcasts to large audiences	Group or conference presentation	Broadcast to large audiences or in-house use for decisions with important financial implications	Workshops where participants present newly developed business model ideas to each other
Customer Insights				
What if…?				
Positioning				
How it is done				

Figure V1: Storyline Tool

V.2 Prototype Strategy Canvas Tool

Purpose: To plot the new prototype's value proposition's performance in relation to the original competitor's value proposition canvas in each segment to illustrate the new features.

Methodology: Workshop

Time requirements: 15min preparation and 2h workshop per customer.

Preparation:
1) Print the table, new value proposition graph and competitor radar.
2) Fill in the 'Importance to customer' and 'Competitors performance' columns with the results from the value proposition canvas tool in the competitor's analysis. From the same competitor's analysis, plot the original 'Importance to customer' and 'Competitors performance' on the new strategic canvas graph. Since the customer importance is carried over from the competitor analysis, the original 8 to 10 categories that were chosen based on the highest customer importance will remain the same in this step.
3) Add in an

How workshop is performed:
1) Fill in the performance of the prototype's value proposition for each of the 23 sub-categories.
2) Important and industry specific categories and sub-categories not covered by the list are added and assessed in the same way.
3) An explanation must be given for every sub-category as to why the prototype value proposition's performance differs from the customer importance and competitor performance. The potential action areas, where they can take action and capitalise further if needed, are then filled in within each sub-category. This is where the new value proposition's performance is lower than the customer importance or the competitor performance.
4) Plot the prototype value proposition's performance on the new strategic canvas graph with the 8 to 10 highest ranked customer importance categories.

Figure V2: Prototype Strategy Canvas Tool description

Category	Sub-category	Applied sub-category	Importance to customer (1: very low. 10: very high)	Competitors performance (1: very low. 10: very high)	New value proposition's performance (1: very low. 10: very high)	Explanation	Potential action areas
Price	Purchase price						
	Life cycle costs						
Product	Product performance						
	Product range						
	Accessories						
	Design						
	Convenience/simplicity						
	Customization						
	Accessibility						
	Evaluation/Trial possibilities						
	Environmental friendliness						
	Fun						
Brand	Awarness/Familiarity						
	Status						
Customer	Cost-reduction for customer						
	Customer relationship						
	Service and instruction						
	Risk reduction						
Life-cycle	Delivery						
	Purchase price						
	Use						
	Maintenance						
	Disposal						
New Catergory	New sub-category 1						
	New sub-category 2						

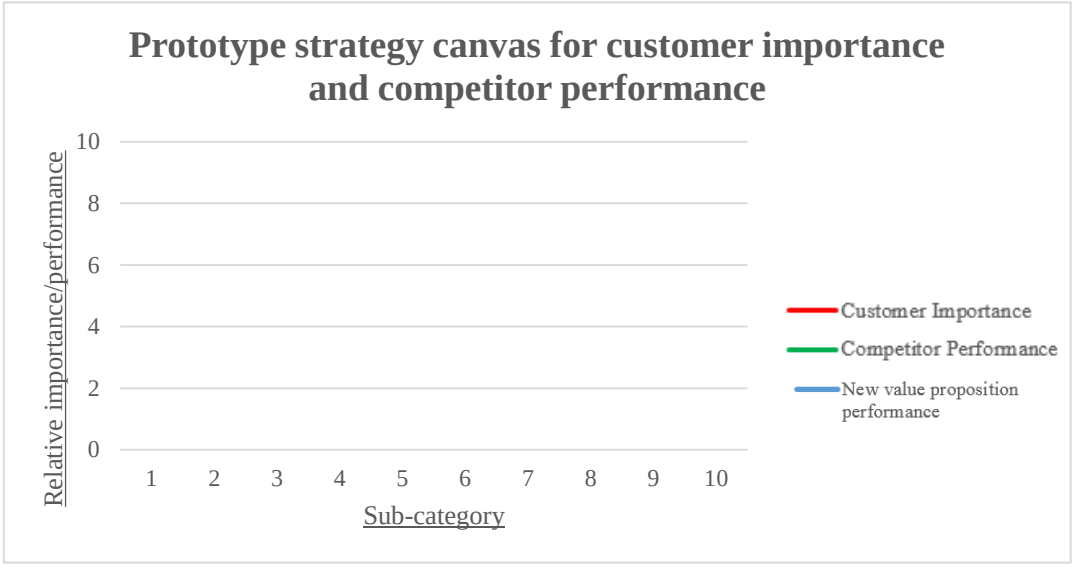


Figure V3: Prototype Strategy Canvas Tool

V.3 GAP Analysis

Purpose: To identify the openings that exist between the state of the current business model and the business model concept.

Methodology: Individual work

Time requirements: 1–3h per prototype.

Preparation: Print the GAP analysis template.

How it is performed:
1) Consider each business model building block, choosing and writing down the topics that represent the most important openings or gaps that currently exist.

2) Write the 'as is' and then the 'to be' state for every topic. Fill in the type of hurdle that currently exists between the 'as is' and 'to be' state. Finally, describe the actual hurdle and how this hurdle can be overcome. Consider the timeframe required in order to overcome this particular hurdle.

Change topics		**GAP**		**Hurdles assessment**	
BM building block	**Topic**	**As is**	**To be**	**Type of hurdle**	**Description and action**
Key Partners	*Hints: Choose one of the topics from the "concept business model"*	*Hints: What does current state look like?*	*Hints: How do we want it to be?*	*Hints: What type of hurdle is in the gap? Example: Strategic Structural/processual Systems Competence Financial Time* *Action & timeframe*	*Hints: Describe the hurdle and how it can be overcome?* *Hints: Timeframe, summarize the action needed*
Key resources				*Action & timeframe*	
Key activities				*Action & timeframe*	
Value proposition				*Action & timeframe*	
Customer relationship				*Action & timeframe*	
Channels				*Action & timeframe*	
Customer segments				*Action & timeframe*	
Revenue streams				*Action & timeframe*	
Cost structure				*Action & timeframe*	

Figure V4: GAP Analysis Tool
Source: Geterud and Tegern, 2012)

V.4 Business Impact and Uncertainty Tool

Purpose: To gain a better understanding of the uncertainties, risks, sustainable advantage and future state surrounding the business model concept.

Methodology: Individual work.

Time requirements: 2-3h.

Preparation: Print template.

How it is performed:
1) Assess uncertainties & risks and sustainable advantage by summarizing each topic through a clear and precise "action title" and a short text. Be as precise and include numbers when possible. The reader should in the limited space have the ability to assess the commercial potential and decide whether the BMI is commercially feasible.
2) Give a vision regarding future state to help the reader visualize which customer and product offering developments can be possible.

(Source: Geterud and Tegern, 2012)

 **Uncertainty & Risks**	Commercial uncertainty: Title Text Risks: Title Text
 **Sustainable advantage**	Complexity to imitate: Title Text
 **Future state**	Market & customer segments: Title Text Product offering: Title Text

Figure V5: Business Impact and Uncertainty description and tool

V.5 Positioning Tool

Purpose: To find a distinct positioning by choosing the values that either have been created or where high achievement is made already according to the previous prototype strategy canvas. This should be aligned with the long-term company strategy.

Methodology: Project team round-table discussion

Time requirements: 1-3h.

Preparation: Print template.

How it is performed:
Assess the categories from the prototype strategy canvas tool where competition is outperformed by the value proposition prototype and choose two categories in line with the value offer and business model prototype where long-term profitability can be reached and complexity to imitate is high. Then plot competitor's position according to these values. Let the size of the circle symbolize the market size of the competitor.

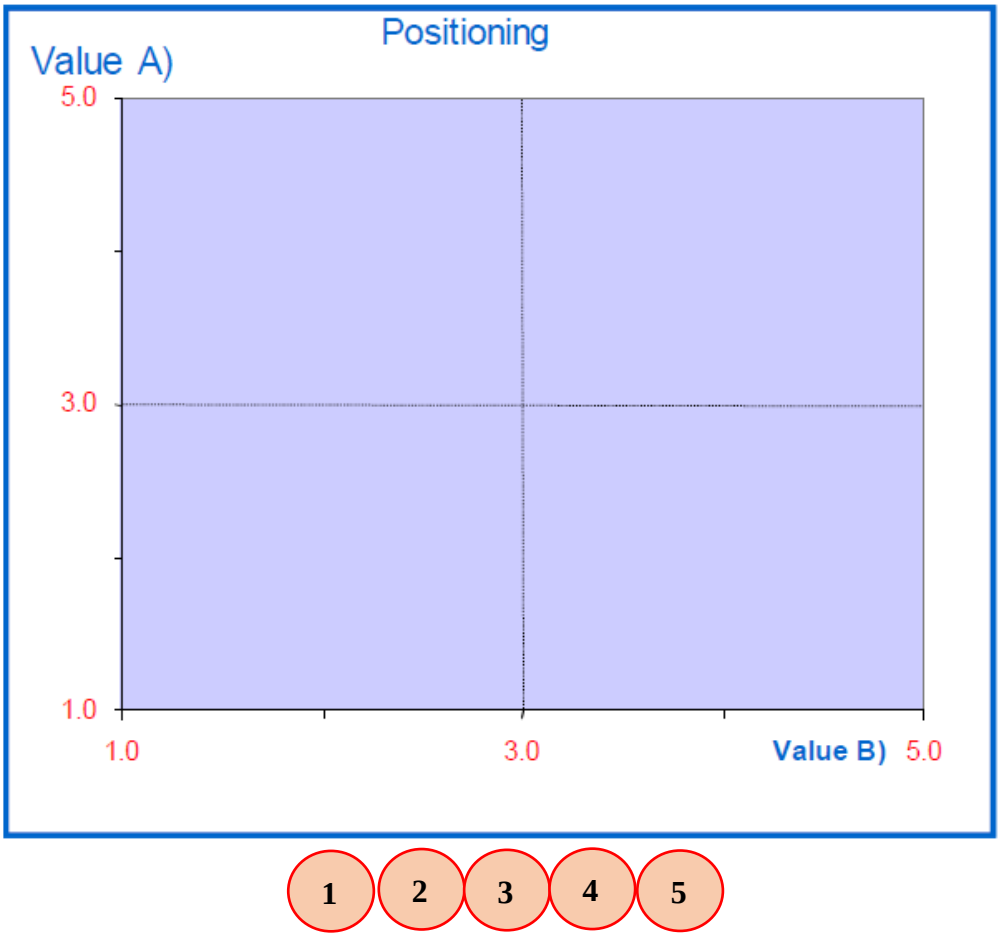


Figure V6: Positioning description and tool
(Source: Geterud and Tegern, 2012)

V.6 Risk Assessment Tool

Purpose: To understand the risks associated with the business model and projects.

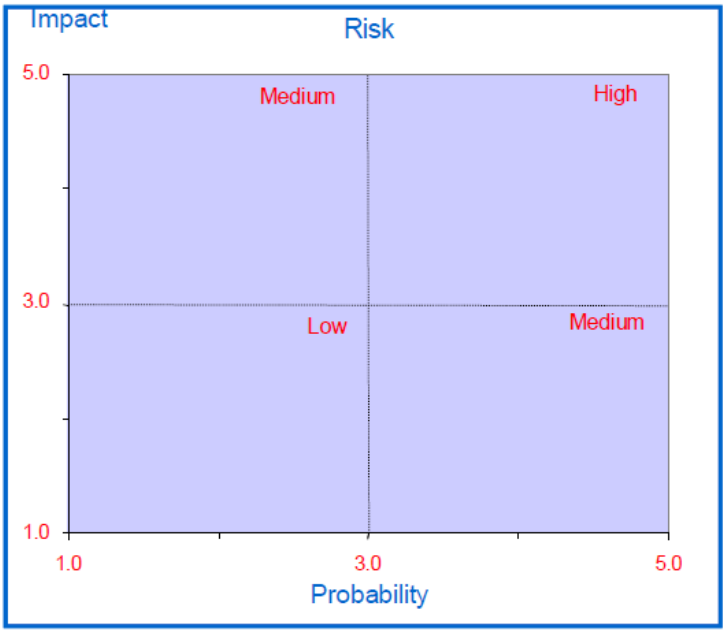
Methodology: Project team round-table discussion.

Total time requirements: 1-3 hours

How it is done: Assess the risks from a Company, Competitors and Customer perspective to find where the most important risks are. Risk depends on the impact and probablity and is graded Low-High.

#	Customers	Risk	Countermeasure
1			
2			
3			
4			
	Competitors		
5			
6			
7			
	Company		
8			
9			
10			

*Risk depends on the impact and probablity and is Low-High



1 2 3 4 5

Figure V7: Risk Assessment description and tool
(Source: Geterud and Tegern, 2012)

V.7 SWOT Analysis

Purpose: To assess the overall integrity of the business model prototype as well analyse every component in detail in terms of its strengths, weaknesses, opportunities and threats.

Methodology: Project team brainstorming session.

Time requirements: 2h.

How it is performed:
1) Answer the questions in detail posed in Section T.7.1 in terms of the business model prototype. Prioritise the questions from most to least important afterwards in terms of that business model prototype.

2) Rank the statements in Section T.7.2 from 1 to 5.

3) Describe how the poor performing areas in Steps 14.7.1 and 14.7.2 will be fixed.

Figure V8: SWOT Analysis description and tool

V.7.1: Overall SWOT Analysis

Table V1: Overall SWOT Analysis Tool

SWOT Category	Questions	Answer
Internal strength questions	What is the company good at doing?	
	What resources does the company possess internally?	
	Intangible assets such as employee talents, abilities, education, social networks and knowledge.	
	Tangible assets such as facilities, machinery, investment and distribution networks.	
	What does the company do better than its competitors?	
	Does the company have a successful R&D capability?	
Internal weakness questions	Is the company geographically poorly located?	
	Are there any resources that act as a limiting factor?	
	What does the company lack in terms of technology, education or abilities?	
	Which areas within the company require improvement in order to achieve the set out objectives more effectively?	
External opportunities	Which opportunities are available to be captured which will be beneficial to the organisation?	
	Has there been recent alterations or growth spurts within some markets which could have potentially generated opportunities?	
	Does the organisation possess a positive and good perception?	
	Does any type of legislation or funding exist that is obtainable and which will benefit the organisation?	
External negative factors	Who are the current competitors in the external market environment?	
	Which factors have the potential to be threats to the organisation?	
	Are there issues that pose a danger to the organisation's advertising efforts?	
	Are there any major alterations in the price, quality of availability of raw materials from suppliers?	
	Are there any changes or newly introduced governmental licences, laws, regulations, policies or alterations in the economy or social customer behaviours that could result in a decrease in company sales?	

(Source: Berry, 2016)

V.7.2: Business Model Canvas SWOT Analysis

V.7.2.1 Strength & Weakness Assessment

Value Proposition Assessment	+	-	
Our Value Propositions are well aligned with customer needs	1 2 3 4 5	1 2 3 4 5	Our Value Propositions and customer needs are misaligned
Our Value Propositions have strong network effects	1 2 3 4 5	1 2 3 4 5	Our Value Propositions have no network effects
There are strong synergies between our products and services	1 2 3 4 5	1 2 3 4 5	There are no synergies between our products and services
Our customers are very satisfied	1 2 3 4 5	1 2 3 4 5	We have frequent complaints

Cost/Revenue Assessment	+	-	
We benefit from strong margins	1 2 3 4 5	1 2 3 4 5	Our margins are poor
Our revenues are predictable	1 2 3 4 5	1 2 3 4 5	Our revenues are unpredictable
We have recurring Revenue Streams and frequent repeat purchases	1 2 3 4 5	1 2 3 4 5	Our revenues are transactional with few repeat purchases
Our Revenue Streams are diversified	1 2 3 4 5	1 2 3 4 5	We depend on a single Revenue Stream
Our Revenue Streams are sustainable	1 2 3 4 5	1 2 3 4 5	Our revenue sustainability is questionable
We collect revenues before we incur expenses	1 2 3 4 5	1 2 3 4 5	We incur high cost before we collect revenues
We charge for what customers are really willing to pay for	1 2 3 4 5	1 2 3 4 5	We fail to charge for things customers are willing to pay for
Our pricing mechanisms capture full willingness to pay	1 2 3 4 5	1 2 3 4 5	Our pricing mechanisms leave money on the table
Our cost our predicable	1 2 3 4 5	1 2 3 4 5	Our cost are unpredictable
Our Cost Structure is correctly matched to our business model	1 2 3 4 5	1 2 3 4 5	Our Cost Structure and business model are poorly matched
Our operations are cost-efficient	1 2 3 4 5	1 2 3 4 5	Our operations are cost-inefficient
We benefit from economies of scale	1 2 3 4 5	1 2 3 4 5	We enjoy no economies of scale

Figure V9: Strength and weakness assessment tool part one (Osterwalder & Pigneur, 2010)

Infrastructure Assessment	+	-	
Our Key Resources are difficult for competitors to replicate	1 2 3 4 5	1 2 3 4 5	Our Key Resources are easily replicated
Resource needs are predictable	1 2 3 4 5	1 2 3 4 5	Resources needs are unpredictable
We deploy Key Resources in the right amount at the right time	1 2 3 4 5	1 2 3 4 5	We have trouble deploying the right resources at the right time
We efficiently execute Key Activities	1 2 3 4 5	1 2 3 4 5	Key Activity execution is inefficient
Our Key Activities are difficult to copy	1 2 3 4 5	1 2 3 4 5	Our Key Activities are easily copied
Execution quality is high	1 2 3 4 5	1 2 3 4 5	Execution quality is low
Balance of in-house verses outsourced execution is ideal	1 2 3 4 5	1 2 3 4 5	We execute too many or too few activities ourselves
We are focused and work with partners when necessary	1 2 3 4 5	1 2 3 4 5	We are unfocused and fail to work sufficiently with partners
We enjoy good working relationships with Key Partners	1 2 3 4 5	1 2 3 4 5	Working relationships with Key Partners are conflict-ridden

Customer Interface Assessment	+	-	
Customer churn rates are low	1 2 3 4 5	1 2 3 4 5	Customer churn rates are high
Customer base is well segmented	1 2 3 4 5	1 2 3 4 5	Customer base is un-segmented
We are continuously acquiring new customers	1 2 3 4 5	1 2 3 4 5	We are failing to acquire new customers
Our Channels are very efficient	1 2 3 4 5	1 2 3 4 5	Our Channels are inefficient
Our Channels are very effective	1 2 3 4 5	1 2 3 4 5	Our Channels are ineffective
Channel reach is strong among customers	1 2 3 4 5	1 2 3 4 5	Channel reach among prospects is weak
Customers can easily see our Channels	1 2 3 4 5	1 2 3 4 5	Prospects fail to notice our Channels
Channels are strongly integrated	1 2 3 4 5	1 2 3 4 5	Channels are poorly integrated
Channels provide economies of scope	1 2 3 4 5	1 2 3 4 5	Channels provide no economies of scope
Channels are well matched to Customer Segments	1 2 3 4 5	1 2 3 4 5	Channels are poorly matched to Customer Segments
Strong Customer Relationships	1 2 3 4 5	1 2 3 4 5	Weak Customer Relationships
Relationship quality correctly matches Customer Segments	1 2 3 4 5	1 2 3 4 5	Relationship quality is poorly matched to Customer Segments
Relationships bind customers through high switching cost	1 2 3 4 5	1 2 3 4 5	Customers switching cost are low
Our brand is strong	1 2 3 4 5	1 2 3 4 5	Our brand is weak

Figure V10: Strength and weakness assessment tool part two (Osterwalder & Pigneur, 2010)

V.7.2.2 Threat Assessment

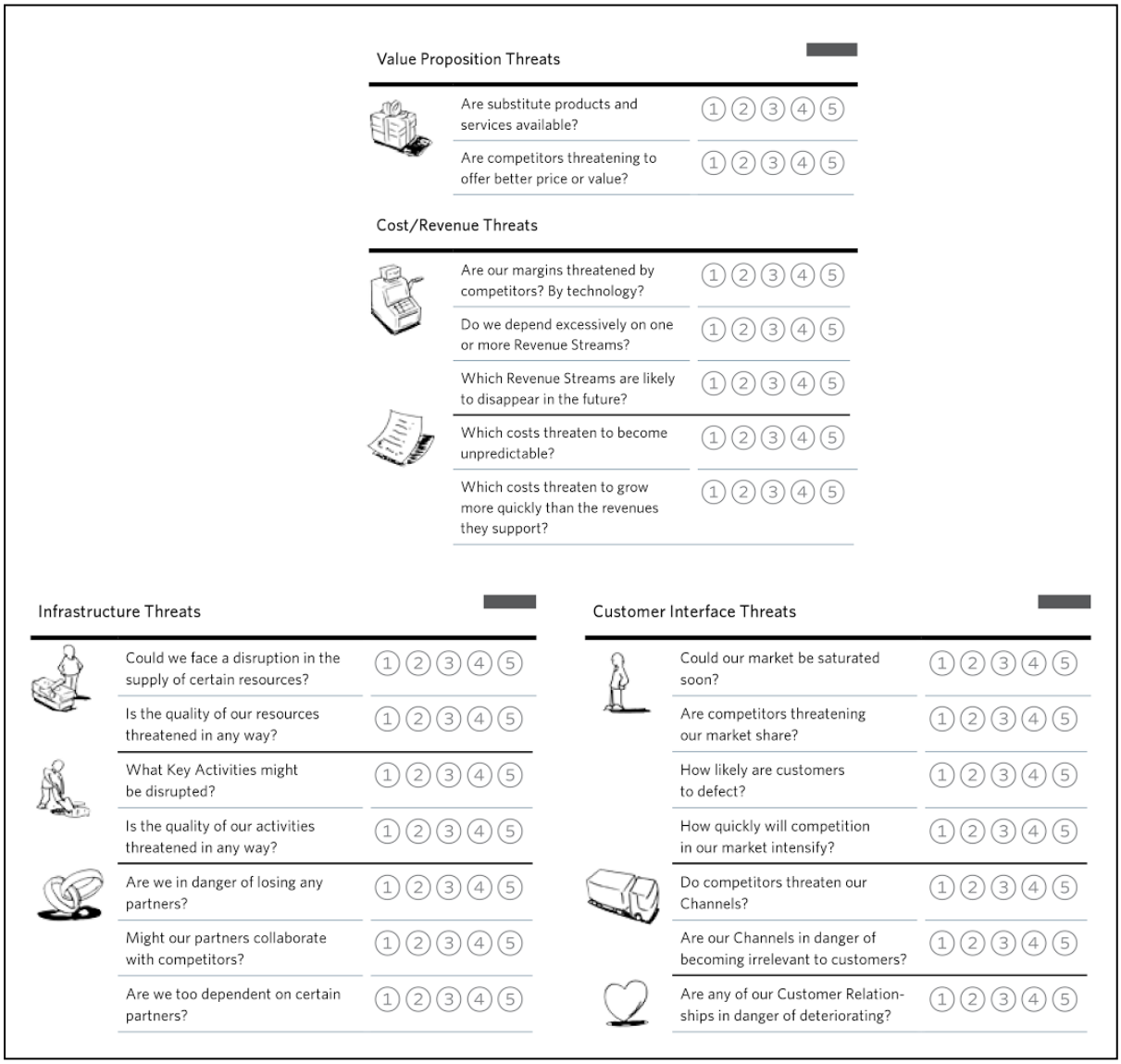


Figure V11: Threat assessment tool
(Osterwalder & Pigneur, 2010)

V.7.2.3 Opportunity Assessment

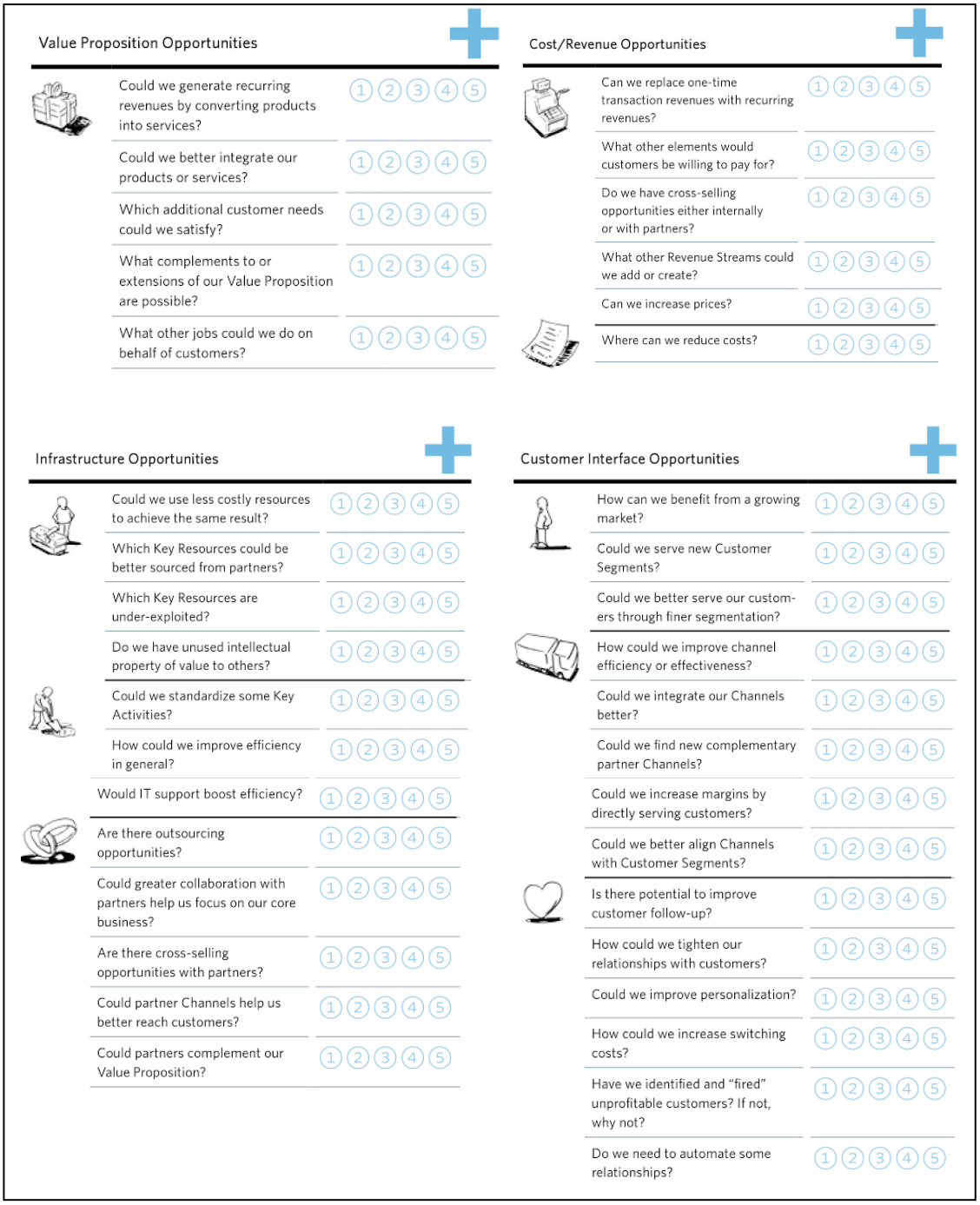


Figure V12: Opportunity assessment tool
(Osterwalder & Pigneur, 2010)

V.8 Scenarios Tool

Purpose: To generate various different scenarios in order to assess how the business model concept will react and perform.

Methodology: Team project brainstorming and discussion session.

Time requirements: 2h.

How it is performed:
1) Generate between two and four different specific scenarios that are in line with the white space opportunity. The scenario should be a short narrative that outlines core elements.
2) Describe how each one of the nine business model prototype components will react and operate within that scenario.

Scenario	**Nine block description**
Title:	Customer segments: Value proposition: Channels:
Description:	Customer relationships: Revenue streams: Key resources: Key activities: Key partnerships: Cost structure:

Figure V13: Scenario description and tool

Appendix W

Appendix W provides information surrounding the first design guideline survey. Sections W.1 to W.4 contain the invitation email, written consent form, explanatory email and summary document respectively.

W.1 Framework Validation Invitation Email

Dear Participant.

I am currently a Master's Engineering student at Stellenbosch University, South Africa.

My thesis specializes in developing a BMI framework that will assist a settled business to develop a brand-new business model for market opportunities that do not fit into their current operating business model (these opportunities are defined as 'White Spaces').

To briefly summarise, the framework involves:

1) Identifying, assessing and classifying white space market opportunities.
2) Designing an appropriate business model for that specific opportunity.
3) Assessing, testing, iterating and implementing the designed business model.

The main research domains are: innovation and innovation management, business models, business model innovation, business strategy and white spaces.

I am coming to the point in my thesis where I need to recruit participants with backgrounds and expertise in these research fields to validate my framework.

The validation process will include a short document summarising the framework and the theory behind it, followed by an online survey which will take approximately 30 minutes. You will have three weeks to complete in - in your own time.

Would you please be willing to participate in this validation process?

If there is any way that I can make their voluntary participation more convenient or easier in any way I will happily do so.

Thank you for your time.

Kind Regards.
Wouter Kühn.

CFA - Passed Level 1
B.Eng. - Mechanical Engineering
M.Eng. - Engineering Management - Business Model Innovation [Student]

e: 17171830@sun.ac.za
p: (+27) 768339235

INDUSTRIAL ENGINEERING
STELLENBOSCH UNIVERSITY

W.2 Framework Validation Written Consent Form

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

STELLENBOSCH UNIVERSITY
WRITTEN CONSENT TO PARTICIPATE IN A RESEARCH SURVEY

TITLE OF RESEARCH PROJECT:	A Business Model Innovation Framework for Capturing White Space Opportunities
REFERENCE NUMBER:	SU-HSD-004284
PRINCIPAL INVESTIGATOR:	Wouter Kuhn
ADDRESS:	Industrial Engineering Department, Stellenbosch University, Private Bag X1 Matieland, 7602, South Africa.
CONTACT NUMBER:	(+27) 768339235
E-MAIL:	17171830@sun.ac.za

Dear participant

Kindly note that I am currently a Master's Engineering student at the Department of Industrial Engineering at Stellenbosch University, and I would like to invite you to participate in a research project entitled: A BMI Framework for Capturing White Space Opportunities

Please take some time to read the information presented here, which will explain the details of this project and contact me if you require further explanation or clarification of any aspect of the study. This study has been approved by the Research Ethics Committee (REC) at Stellenbosch University and will be conducted according to accepted and applicable national and international ethical guidelines and principles.

1. **INTRODUCTION:**

Companies are often hesitant to enter markets that do not fit into their core due to the coupled risks and unknown territory, or are they are too blind to see them due to their old and stagnant business model. It is these opportunities, known as white spaces, within these markets however that can generate exceptional corporate growth and unlock new revenue streams. A gap in literature exists in that no illustrative, comprehensive and detailed BMI framework - which contains appropriate processes, tools and building-block design guidelines - exists on how to systematically identify a white space opportunity and develop an innovative business model.

2. **PURPOSE:**

   The proposed project topic aims to generate a generic support BMI framework that will assist companies to identify a white space opportunity and develop and innovative business model. The goal is to contribute to research so that companies can make more informed and better decisions with regards to this framework which contains suitable processes, tools and design guidelines.

3. **PROCEDURES:**

   Participants will be firstly receiving via email the survey consent form. The participant will be required to read the consent form, sign it, scan it into the computer and then email it back to the investigator. Afterwards a summary of the literature of the framework will be emailed to the voluntary participant and how every component of the framework works. The participant will have the responsibility to read through the summary material, after which the survey document will be sent via email, which they will then be required to fill in and email back accordingly.

4. **TIME:**

   The time required to complete the online survey will take 30 minutes.

5. **RISKS:**

   No risks can be foreseen for the researcher or participant by volunteering to agree to the survey. Mr Wouter Kuhn will accommodate any special requests to create a safer environment as required. The participant may withdraw from the study at any point in time if any part of the research circumstances do not conform to the participant. In the event of a related injury, the investigator should be contacted.

6. **BENEFITS:**

   No direct physical benefits will be received by the participant. However, the participants might gain new knowledge from the summary material and studying the framework itself. Additionally, they will add to the developmental research concerning BMI, innovation and innovation management, business models, business strategy and white spaces - these fields of study will benefit from the participant's response.

7. **CONFIDENTIALITY, RECORDINGS AND DATA STORAGE:**

   Any type of information that concerns the participant or the research study in any way will be kept fully confidential. The information will not be disclosed in any way unless the consent of the participant is given. The mentioned information will be confidential in the following way:

   - The surveys will be kept in a Google Drive folder which is protected by a password. Each participant will have an identification number to keep their confidentiality. These numbers will used and stored on Google Drive to add extra confidentiality for potential Google staff that could see the stored files. Finally, it is important to note that the actual Google Drive will be used, not the Stellenbosch University drive.
   - Only Mr Wouter Kuhn and Dr Louis Louw has access to the Google Drive folder. The laptops that are used by the researcher and supervisor are additionally password protected. Additionally, the laptops are housed in offices that are locked by a key lock.
   - All participants will be assigned an identification number to guarantee their personal details remain anonymous within the thesis document itself.

If you have any questions or concerns about this research project, please feel free to contact Mr Wouter Kuhn at 0768339235 or 17171830@sun.ac.za. Additionally, the supervisor of the research, Dr Louis Louw, can be contacted at louisl@sun.ac.za

RIGHTS OF RESEARCH PARTICPANTS: You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché (mfouche@sun.ac.za / 021 808 4622) at the Division for Research Development. You have the right to receive a copy of this Consent form.

If you are willing to participate in this research project, please sign the Declaration of Consent below and return the survey document to the investigator by email.

DECLARATION BY THE PARTICIPANT

As the **participant** I hereby declare that:

- I have read the above information and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is voluntary and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- If the principal investigator feels that it is in my best interest, or if I do not follow the study plan as agreed to, then I may be asked to leave the study before it has finished.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained to my satisfaction.

By signing below, I _____ (name of participant) agree to take part in this research study, as conducted by Mr Wouter Kuhn.

_____ _____

Signed at *(place)* **Date**

_____

Signature of Participant

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator** I hereby declare that the information contained in this document has been thoroughly explained to the participant. I also declare that the participant has been encouraged (and has been given ample time) to ask any questions. In addition, I would like to select the following option:

	The conversation with the participant was conducted in a language in which the participant is fluent.
	The conversation with the participant was conducted with the assistance of a translator, and this "Consent Form" is available to the participant in a language in which the participant is fluent.

_____ _____

Signed at *(place)* **Date**

_____

Signature of Principal Investigator

W.3 Explanatory Email

Dear Validation Participant.

You have agreed to complete an online survey about a generic support BMI framework which aims assist managers in their decisions to identify a white space opportunity and develop an innovative business model.

You can access the survey by clicking on the following link: https://docs.google.com/forms/d/e/1FAIpQLSdOamQmOvxrcnqmHapOtdNZ1L8ZWFtTjDiK0a4vPCb-zlu16Q/viewform?usp=sf_link

You will have three weeks to complete the survey in – the deadline is the 21st of August 2017. A reminder will be sent to you weekly reminding you to complete the online the survey.

Important: Please find attached a document called "Validation Content Summary". This document must be read through thoroughly before starting the validation process.

Thank you very much for taking time out of your busy schedules to partake in this validation process. Your time and effort is greatly appreciated.

Kind Regards.

Wouter Kühn.

CFA - Passed Level 1
B.Eng. - Mechanical Engineering
M.Eng. - Engineering Management - Business Model Innovation [Student]

e: 17171830@sun.ac.za
p: (+27) 768339235

INDUSTRIAL ENGINEERING
STELLENBOSCH UNIVERSITY

W.4 Framework Validation Summary Document

A Business Model Innovation Framework for Capturing White Space Opportunities

Research Summary Document for Validation Purposes

by

Wouter J. Kühn

Department of Industrial Engineering, University of Stellenbosch,

Private Bag X1, Matieland 7602, South Africa.

Supervisor: Dr. L. Louw

1. Introduction

This document serves to give sufficient background knowledge to the participant in order to complete the validation questionnaire.

The validation questionnaire aims to validate a framework capable of capturing white space opportunities followed by generating innovative business models. It is vitally important that the entire document is read through and fully understood by the participant. Any queries can be directed to Wouter Kühn at 17171830@sun.ac.za or (+27) 768339235. Only once you as the participant have fully understood this summary document with no related queries, may the validation questionnaire be completed.

This document starts off by presenting the problem statement, research questions and research objective in Section 2. Section three illustrates the business models and types of innovation used to generate a design table. Section 4 explains the concept of a white space. Section 5 and 6 illustrates how the critical BMI stages and critical activities were respectively identified. Section 7 presents the High-Level Phase Model followed by Section 8 which explains each step within the proposed framework. Finally, Section 9 highlights some important points.

2. Problem Statement, research question and research objective

2.1 Problem Statement

The core problem statement is the following:

A gap in literature exists in that no illustrative, comprehensive and detailed BMI framework - which contains appropriate processes, tools and building-block design guidelines - exists on how to systematically identify a white space opportunity and develop an innovative business model.

2.2 Research Question

This leads to the main research question which is:

How would an illustrative, comprehensive and detailed BMI framework - which contains appropriate processes, tools and building-block design guidelines – capable of systematically identifying a white space opportunity and developing an innovative business model be developed?

2.3 Research Objective

Therefore, the main research objective is:

Develop an illustrative, comprehensive and detailed BMI framework - which contains appropriate processes, tools and building-block design guidelines – capable of systematically identifying a white space opportunity and developing an innovative business model.

Acronym: BMI = Business Model Innovation

3. Business Models & Ten Types of Innovation

3.1 Nine Block Business Model Canvas by Osterwalder & Pigneur (2010):

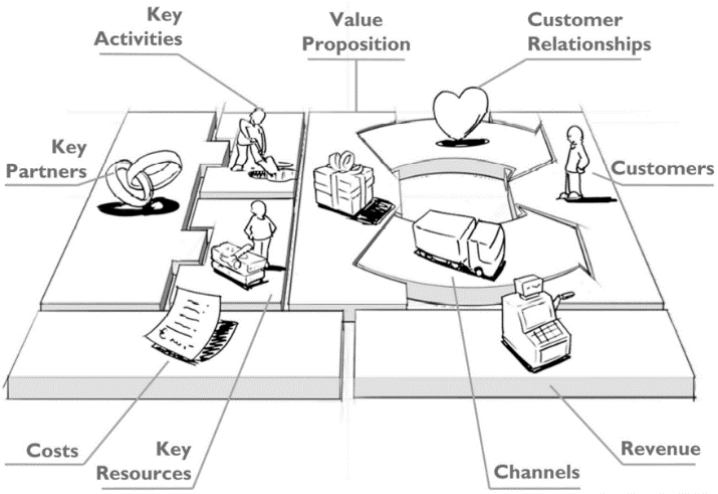


Figure W1: Business Model Canvas

3.2 Four Block Business Model by Johnson (2010):

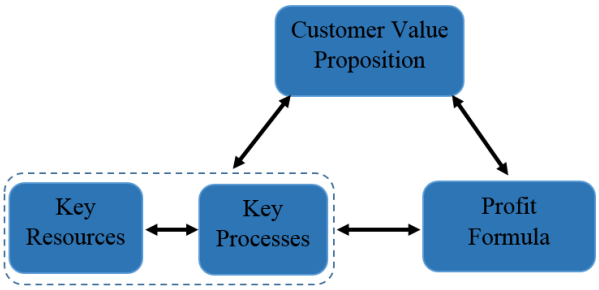


Figure W2: Four Box Business Model

3.3 Ten Types of Innovation by Keeley *et al.* (2013):

The Ten Types of Innovation is a tool that can be used to analyse and advance innovation within business models. Table W1 below only describes the innovation types for purposes of the survey, not how innovation is generated.

Table W1: Ten Types of Innovation by Keeley *et al.* (2013)

Innovation Phase	**Innovation Type**	**Explanation**
Configuration	Profit Model	The way in which you make money
	Network	Connection with others to create value
	Structure	Alignment of your talent and assets
	Process	Signature/superior methods of doing your work
Offering	Product Performance	Distinguishing features and functionality
	Product System	Complimentary products and services
Experience	Service	Support and enhancements that surround your offerings
	Channel	How your offerings are delivered to customers & users
	Brand	Representation of your offerings and business
	Customer Engagement	Distinctive interactions you foster

3.4 Four Block, Nine Block and Ten Innovation Type Business Model merger:

Osterwalder and Pigneur (Nine Block Business Model) and Johnson (Four Block Business Model) are prominent authors within this research study. For this reason, their business models were compared to one another. To generate innovation at a business model component level, the Ten Types of Innovation were included.

The generated table comparing the similarity of the components of these three frameworks can be seen below in Table W2.

Table W2: Design Table

Four box business model components	**Nine block business model components**	**Ten types of Innovation**
Johnson (2010)	Osterwalder & Pigneur (2010)	Keeley *et al* . (2013)
Customer Value Proposition	Customer Segments; Value Proposition; Customer Relationships.	Product Performance; Product System; Service; Customer Engagement.
Profit Formula	Cost Structure; Revenue Streams.	Profit Model
Key Resources	Key Resources; Key Partnerships; Distribution Channels.	Network; Structure; Brand; Channel
Key Processes	Key Activities	Process.

Table W2 above is used for the design of the actual business model components within the framework.

4. White Spaces

4.1 Definition:

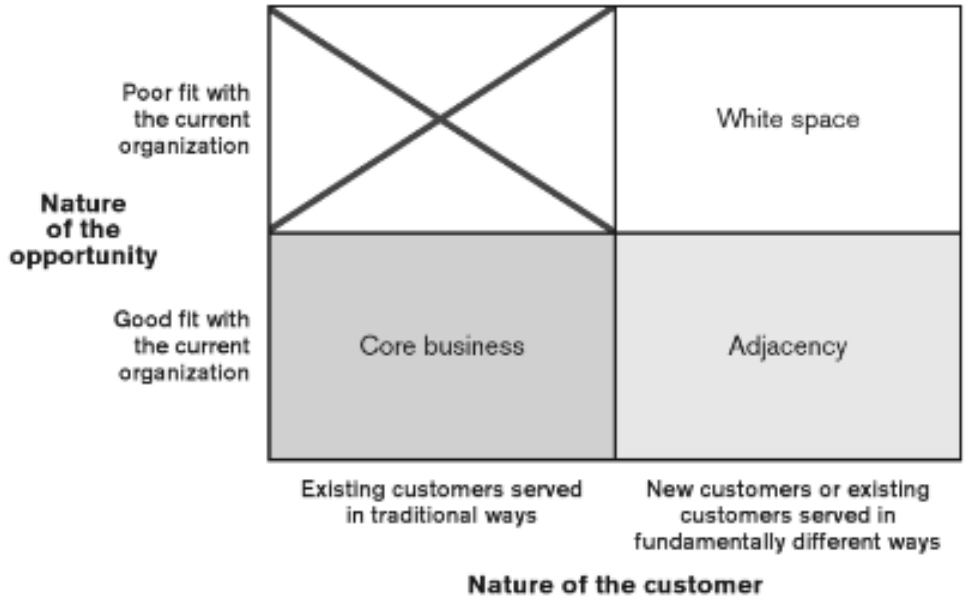


Figure W3: Core, adjacency and white space classifications

White Space Opportunity Definition: "The range of potential activities not defined or addressed by the company's current business model, that is, the opportunities outside its core and beyond its adjacencies that require a different business model to exploit " (Johnson, 2010).

4.2 Requirement of a new business model:

A new business model is required, to satisfy the new value proposition, when the company finds that they must (Johnson, 2010):

- Alter their profit formula. This is especially true regarding changes to the overhead cost structure and the resource velocity.
- Develop a new big set of key processes and resources.
- Generate profoundly dissimilar central rules, norms and metrics.

If one or more of the above points are found to be true, the company will require a new business model to compete. This is due to the opportunity that they are pursuing lying in their white space.

5. Critical Process Stage Analysis

Table W3 below contains the prominent frameworks that were described within the dissertation. It illustrates a comparison of the different BMI (green fill) and Innovation (blue fill) frameworks versus identified BMI process stages. Osterwalder and Pigneur's (2010) Five Stage BMI process (Mobilise, Understand, Design, Implement, Manage) guided the identification of these stages due their high popularity in BMI literature.

Table W3: Critical process stages identified from prominent BMI and innovation frameworks

Source	Lindgardt & Reeves (2011)	Osterwalder & Pigneur (2010)	Geterud & Tegern (2012)	Johnson (2010b)	Frankenberger *et al.* (2013)	Geissdoerfer *et al.* (2017)	Tidd *et al.* (2005)	Du Preez & Louw (2008)	Hansen & Birkinshaw (2007)
Process Model Name	Circular BMI Process	Five Stage BMI Process	BMI Tool Framework	Repeatable BMI Process	4I-Framework	Cambridge BMI Process	Generic Innovation Process	Fugle Model	Innovation Value Chain
Mobilise		X	X			X			
Identify	X		X	X	X	X	X	X	X
Understand	X	X	X		X	X		X	X
Design	X	X		X	X	X	X	X	X
Assess	X	X	X			X	X	X	X
Implement	X	X		X	X	X	X	X	X
Test	X	X		X	X	X		X	
Scale, Manage & Adjust	X	X		X	X	X	X	X	

6. Critical Activity Analysis

The key activities consist of critical steps that should be considered when executing a white space BMI framework. These considerations are summarised in Table W4 below. The key activities are motivated by the dissertation's BMI and Innovation framework authors.

Table W4: Critical activities identified from prominent BMI and innovation frameworks

Source	Lindgardt & Reeves (2011)	Osterwalder & Pigneur (2010)	Geterud & Tegern (2012)	Johnson (2010b)	Frankenberger *et al.* (2013)	Geissdoerfer *et al.* (2017)	Tidd *et al.* (2005)	Du Preez & Louw (2008)	Hansen & Birkinshaw (2007)
Framework Heading	Circular BMI Process	Five Stage BMI Process	BMI Tool Framework	Repeatable BMI Process	4I Framework	Cambridge BMI Process	Innovation as a core business process	Fugle Model	Innovation Value Chain
State goal/purpose/ objective.		X	X			X			
Understand the firm's current business model	X	X	X	X		X			X
Industry analysis		X		X					X
Identify opportunities through JTBD		X		X					
Identify opportunities through gaining an understanding	X	X	X		X				X
Analyse Customers	X	X	X	X	X				X
Analyse Competitors		X	X		X				X
Analyse Technological Trends		X				X			
Look past present market and customer boundaries	X	X							
Assess idea/concept	X	X	X	X	X	X	X	X	X
Store Opportunity								X	
Classify opportunity as an adjacent, white space or core opportunity.				X					
Generate a prototype		X				X		X	
Use Business Model Archetypes/patterns to assist the design process		X				X			

7. High-Level Phase Model

Table W5 below describes, and Figure W4 below illustrates the high-level phases of the framework. Phase 1 to 4 each contain a segment of the framework – the colours corresponds to each framework segment's colour. Phase 5 and 6 is outside the scope of this study. The Change Management block oversees and manages the changes, resistances, BMI barriers and BMI enablers that is accompanied by BMI processes within organisations such as social, physiological, cultural and political issues to name a few. The actual white space BMI framework is on the following page in Figure W5.

Table W5: High-Level Phase Model description

Phase	Stages Name	Description
Phase 1	Opportunity Identification and Understanding	Identifies, assesses, ranks, classifies and understands opportunities.
Phase 2	Business Model Design Concept	Converts opportunities into a business model concepts through an initial design process.
Phase 3	Feasibility	Assesses the viability of the business model concept through a prototyping feasibility assessment.
Portfolio Stage	Portfolio	Stores the solution received from Phase 3 and launches it once the time is correct to deploy it.
Phase 4	Deployment	Detailed design and implementation of the newly designed business model.

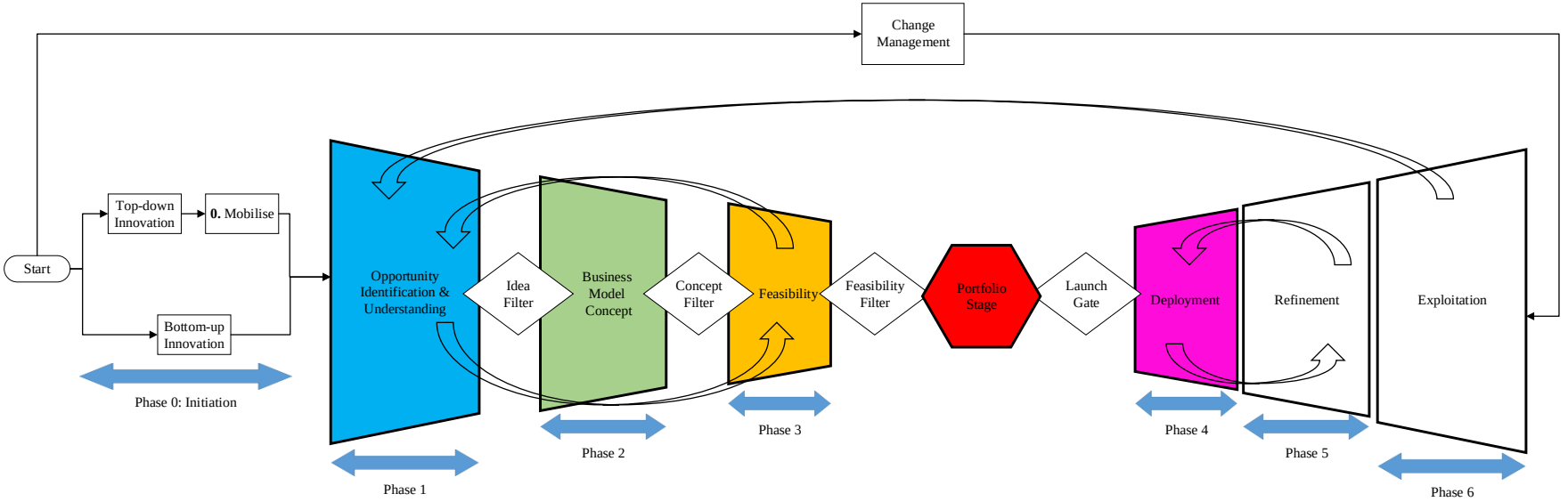


Figure W4: High-Level Phase Model

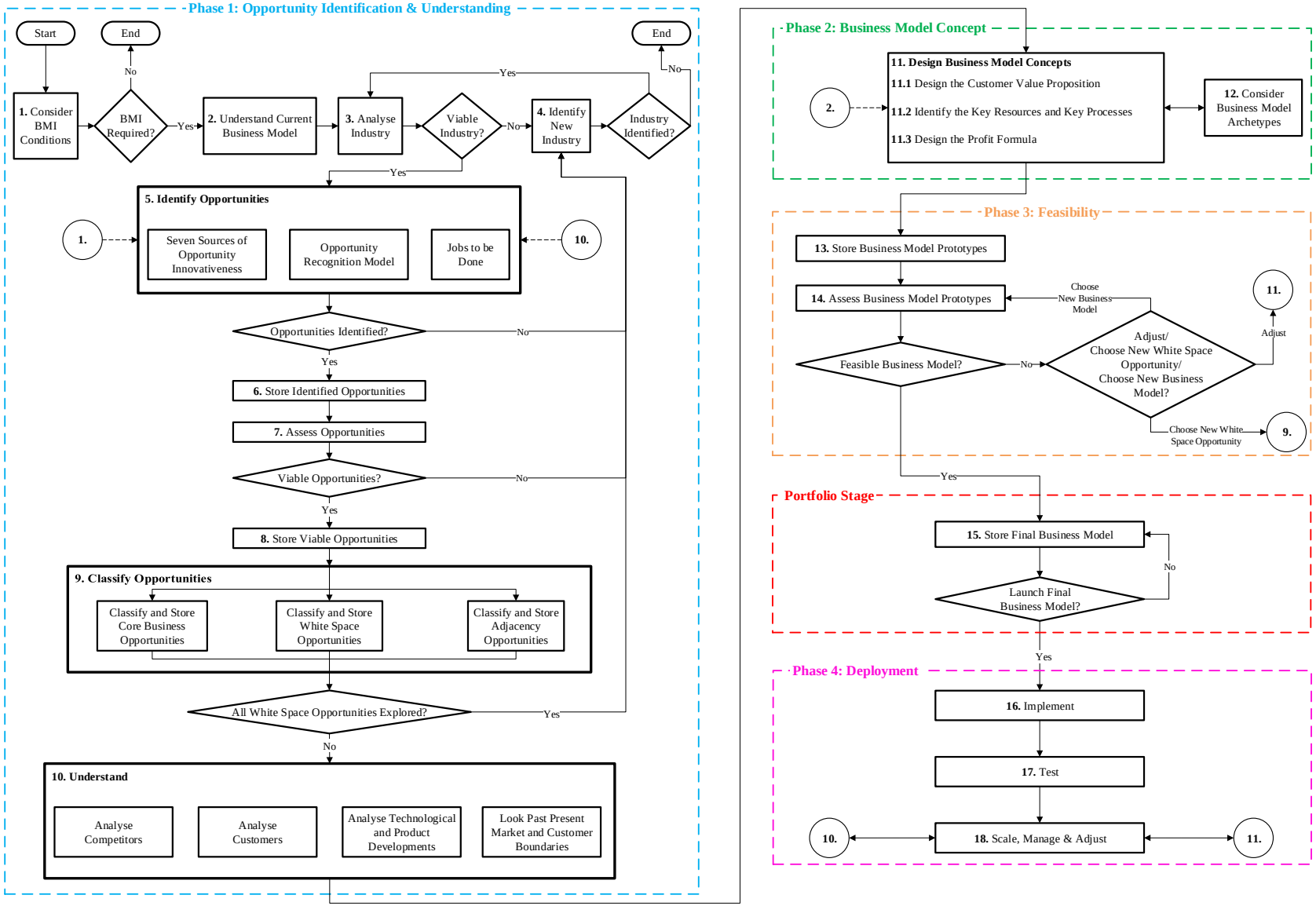


Figure W5: Proposed white space BMI framework

8. Framework Explanation

The framework on the previous page was designed by considering all the information up to this point. The framework steps are explained in the list below:

- **Step1**: Acts as a starting trigger. It contains BMI conditions listing whether it is necessary to execute and use the BMI design framework.
- **Step 2**: Understand the current/parent business model of the firm executing the framework.
- **Step 3**: Analyses a potential industry. If the industry is viable opportunities can be identified in Step 5, if not a new industry should be chosen in Step 4.
- **Step 4**: Identifies a new industry to be analysed. If a new industry could be identified it is analysed in Step 3, if not the framework process ends.
- **Step 5**: Identifies market opportunities through three tools and by considering Step 1 and 10 in a high-level manner. If opportunities were identified are stored in Step 6, if not a new industry should be chosen in Step 4.
- **Step 6**: Stores and pools together all the identified market opportunities.
- **Step 7**: Assesses the identified market opportunities through an internal, external and financial analysis. If no opportunities pass the assessment, a new industry is chosen in Step 4 and the process is repeated.
- **Step 8**: Stores and pools together all the viable market opportunities that passes the assessment in Step 7.
- **Step 9**: Classifies and ranks the opportunities as either a core opportunity, white space opportunity or adjacent opportunity by following conditions stipulated in Figure W3.
- **Step 10**: Selects the top ranked white space opportunity and develops a deeper understanding through an in-depth customer analysis, competitor analysis, technological development analysis and finally by looking past present customer and market boundaries.
- **Step 11**: Designs new and appropriate business model concepts for the white space opportunity using **Table W2**. An input reference from Step 2 is considered to assess which aspects of the parent organisations business model can be used without designing or buying new ones.
- **Step 12**: Contains 55 different business model patterns that act as a source of ideas and inspiration for the design of the business model prototype in Step 11.
- **Step 13**: Stores and defines all the designed business model concepts into prototypes. A physical Value Proposition is created.
- **Step 14**: Assesses the business model prototypes using various tools to evaluate whether it is feasible or not. If the prototype is not deemed as feasible the following decisions are possible: 1) The prototype is kept and adjusted in Step 11, 2) The prototype is discarded and the next best business model is chosen in Step 14 or 3) No prototypes were deemed as feasible and a white space opportunity is chosen in Step 9. Once deemed as feasible, the most successful prototype passes from Step 14 to Step 15.
- **Step 15**: This step contains the final white space business model design for reference, highlight and storage purposes. If the time is appropriate it is launched into Phase 4 to Step 16, otherwise it either stays dormant within Step 15.
- **Step 16**: Implements the designed business model within the white space opportunity environment.
- **Step 17**: The final business model is operated and therefore tested within a section of the target market.
- **Step 18**: Lessons are learnt from Step 17, after which the necessary adjustments to Step 10 and 11 are made. Additionally the final business model is managed and could be enlarged in scale.

9. Important Points to Consider

- It is important to realise that the High-Level Phase Model and framework contains a strong flexible nature and its steps do not have to be followed in a strict linear or rigid fashion.
- The framework utilises the following stages in its process: Mobilise, Identify, Understand, Design, Assess, Implement, Test and Scale, Manage and Adjust.
- The framework contains in depth **practical** tools (in the form of figures or tables that can be filled out for example) within each step to execute the step's objective. The validation of these tools is outside the scope of this study.
- To generate an *innovative* business model, three main techniques were used:
    - Core Business Model Innovation processes were used which influences the design of the business model directly such as iteration, refinement and reconfiguration.
    - The Ten Types of Innovation were used to generate innovation at a component level.
    - A five-step innovation process, listed below, was incorporated within each business model component.
        1. Look at the dominant business model components within the industry.
        2. Dissect the most important long held beliefs of each component.
        3. Turn the underlying belief on its head.
        4. Sanity test the reframed belief.
        5. Translate the reframed belief into the new business model.

10. References

→Du Preez, N. D. & Louw, L. (2008). A framework for managing the innovation process. *Management of Engineering & Technology* (pp. 546-558). Stellenbosch: University of Stellenbosch.
→Frankenberger, K., Weiblen, T., Csik, M., & Gassmann, O. (2013). The 4I-framework of business model innovation: A structured view on process phases and challenges. *International Journal of Product Development*, 18(3-4), 249-273.
→Geissdoerfer, M., Savaget, P., & Evans, S. (2017). The cambridge business model innovation process. *Procedia Manufacturing*, 8(1), 262-269.
→Geterud, J. & Tegern, S. (2012). *Business Model Innovation: An empirically derived framework for early stage business model innovation*. Unpublished master's thesis, Chalmers University of Technology.
→Hansen, M. T., & Birkinshaw, J. (2007). The innovation value chain. *Harvard business review*, 85(6), 121.
→Johnson, M. (2010b). *Seizing the White Space: Business Model Innovation for Growth and Renewal*. Boston: Harvard Business Review Press.
→Keeley, L., Walters, H., Pikkel, R., & Quinn, B. (2013). *Ten types of innovation: The discipline of building breakthroughs*. Hoboken: John Wiley & Sons.
→Lindgardt, Z. & Reeves, M. (2011). *How to develop and implement a new business model.* Boston Consulting Group. [Online]. Retrieved March 14, 2016, http://www.amanet.org/training/media_files/2010/develop-new-business-model/index.htm
→Osterwalder, A. & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Hoboken: John Wiley & Sons.
→Tidd, J., Bessant, J., & Pavitt, K. (2005). *Managing innovation integrating technological, market and organizational change*. San Francisco: John Wiley and Sons Ltd.

Appendix X

Appendix X provides the survey sections, question numbers, questions and their respective explanation/purpose for inclusion.

Table X1: Explanation and purpose of each survey question

Survey Section	Question Number	Question	Explanation and purpose
3	10	Do you agree or disagree with the following definition for the term Business Model Innovation as adopted by the study: "A reconfiguration of activities within one or more building blocks of a business model which contains a methodical, dynamic, recurring and dependable capability, possessing enterprise innovation, that is systematic in nature and that entrepreneurs, organisations and managers must construct, shape, reinforce and periodically transform to obtain a maintainable competitive advantage within new product/service markets in which the firm competes."?	This aims to validate the generated BMI definition to clarify the concept of what BMI is.
3	12	Do you agree or disagree with Johnson's figure of a White Space opportunity and his following definition of a White Space: "The range of potential activities not defined or addressed by the company's current business model, that is, the opportunities outside its core and beyond its adjacencies that require a different business model to exploit."?	This question aims to authenticate Johnson's white space figure and definition as well as gain a greater understanding of what the participants seem to deem what a white space is.
4	14	Do you agree or disagree with how the similar components of the three frameworks are divided and fit into one another in the table above?	Question 14 validates whether the business model component design table was generated correctly.
4	16	Do you agree or disagree that the above table includes all the necessary structural components to be found within a business model?	This question aims to validate and investigate further the required components of a business model.
5	18	Do you agree or disagree that Phase 1 to Phase 4 are sufficient and relevant as main and key high-level phases?	This is to authenticate whether the High-Level Phase Model 's phases are adequate.
5	20	Do you agree or disagree with the logical sequence of phases in the figure above (although it is not required to follow the phases in a strict linear fashion)?	Question 20 validates whether the process of the High-Level Phase Framework is sufficient.
6; 7; 8; 9; 10.	22; 26; 30; 34; 36.	Do you agree or disagree with the approach and steps found within Phase _?	This question aims to validate whether the overall approach as well as the steps found within Phase 1, Phase 2, Phase 3, Portfolio Stage and Phase 4 are correct.

6; 7; 8; 10.	24; 28; 32; 38.	Do you agree or disagree with the logical sequence of steps within Phase _ (although it is not required to follow the steps in a strict linear fashion)?	This is to authenticate whether stepwise process found within Phase 1, Phase 2, Phase 3, Portfolio Stage and Phase 4 are correct.
11	40	The overall approach of the framework is to mobilise, identify, understand, design, assess, implement, test, and scale manage and adjust. Do you agree or disagree with these stages?	Question 40 intends to validate the overall approach of the white space BMI framework.
11	42	Do you agree or disagree that the framework is generic enough to be used within different industries and that it is not limited to a specific application?	Validates the first key framework feature.
11	44	Do you agree or disagree that the process of moving through the framework is rational and pilots a structured and organised decision-making process?	Validates the second key framework feature.
11	46	Do you agree or disagree that the developed framework would be effectively practical within industries?	Validates the third key framework feature.
11	48	Do you agree or disagree that the framework contains a substantiated, inclusive and comprehensive approach to the problem by integrating various fields of discipline?	Validates the fourth key framework feature.
11	50	Do you agree or disagree that the framework is flexible and adjustable enough to be used within specific situations?	Validates the fifth key framework feature.
11	52	Do you agree or disagree that the white space business model innovation framework is capable of supporting companies to assist them in making better-informed decisions on how to systematically identify a white space opportunity and develop an innovative business model?	Validates the research study's main objective.
11	54	Do you agree or disagree that the developed framework makes a contribution to current literature?	This aims to investigate whether the research study's proposed solution contributes to current literature.
3; 4; 5; 6; 7; 8; 9; 10; 11.	11; 13; 15; 17; 19; 21; 23; 25; 27; 29; 31; 33; 35; 37; 39; 41; 43; 45; 47; 49; 51; 53; 55.	If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your Answer Choice. For all answer options, please give any improvements in detail which you think is necessary, if any	This open-ended question followed each closed-ended Likert Scale question. It was compulsory to answer if any disagreement was chosen, but open for comment for all answer options.

Appendix Y

Appendix Y contains the framework validation questionnaire as was seen by the participants on Google Forms.

White Space Business Model Innovation Framework Validation

Thank you for agreeing to participate in this online survey. Just to refresh your memory, this validation process centers on a thesis topic called: A Business Model Innovation Framework for Capturing White Space Opportunities.

This validation questionnaire aims to validate and investigate a framework which is capable of identifying a white space opportunity and developing an innovative business model.

Please make sure that you have read through the summary material that was previously emailed to you.

The research is conducted in accordance with the Stellenbosch University's Framework Policy for the Assurance and Promotion of Ethically Accountable Research. The participant may gladly ask about any questions regarding this matter for further clarification.

Please note that you as the participant will be assigned an identification number to guarantee your personal details remain anonymous within the thesis document itself.

Please remember that your participation is completely voluntary and that you are fully allowed to stop and leave the validation process at any point in time. Before completing the survey, if there are there any circumstances, concepts or aspects of any type that requires further clarification, please contact the investigator at 17171830@sun.ac.za or (+27)768339235.

The survey questions within the following sections must please be completed in sufficient detail and to the best of your knowledge. The investigator urges to write in more detail than required rather than too little.

The survey uses the Likert Scale (Strongly Agree to Strongly Disagree) where necessary. It is compulsory to elaborate on your answer choice if "undecided", "disagree" or "strongly disagree" is ever chosen.

Please remember that the questionnaire must be completed by the 21st of August 2017.

Please Note: 1) Although the framework (and High Level Phase Model) may look structured, it does not have to be followed in a rigid or strict manner is therefore flexible in nature.

Only once you as the participant have read through and understood the above, and have understood the summary material with no related queries, may the questionnaire be completed.

Personal Background

This section aims to obtain personal background details for credibility purposes.

2. **Provide your name below.**

3. **What is your Job Description/Title?**

4. **Which of the following currently best describes your current job level?**
   Mark only one oval.

- ◯ Owner/Executive/C-Level
- ◯ Senior Management
- ◯ Middle Management
- ◯ Entry Level Management

5. **Which of the following best describes the principal industry of your organisation?**
Mark only one oval.

- ◯ Advertising & Marketing
- ◯ Agriculture
- ◯ Airlines & Aerospace (including Defense)
- ◯ Automotive
- ◯ Business Support & Logistics
- ◯ Construction, Machinery, and Homes
- ◯ Education
- ◯ Entertainment & Leisure
- ◯ Finance & Financial Services
- ◯ Food & Beverages
- ◯ Government
- ◯ Healthcare & Pharmaceuticals
- ◯ Insurance
- ◯ Manufacturing
- ◯ Nonprofit
- ◯ Retail & Consumer Durables
- ◯ Real Estate
- ◯ Telecommunications, Technology, Internet & Electronics
- ◯ Transportation & Delivery
- ◯ Utilities, Energy, and Extraction
- ◯ I am currently not employed
- ◯ Other

6. **If "Other" was chosen in question 4 above, please specify the principle industry.**

_____

7. **Have you ever been involved in a business model design or business model reconfiguration process?**
Mark only one oval.

- ◯ Yes
- ◯ No

8. **If "Yes" was chosen above in question 6, please elaborate further in order to provide more context.**

_____

9. **List the years of experience within each of the following research fields:**
Mark only one oval per row.

	No Experience	Experience < 1 Year	1 Year <= Experience < 3 Years	3 Years <= Experience < 5 Years	5 Years <= Experience < 10 Years	Experience => 10 Years
Innovation and Innovation Management	◯	◯	◯	◯	◯	◯
Business Models	◯	◯	◯	◯	◯	◯
Business Model Innovation	◯	◯	◯	◯	◯	◯
Business Strategy	◯	◯	◯	◯	◯	◯
White Spaces	◯	◯	◯	◯	◯	◯

Definition Validation

This section aims to validate the following two definitions:

1. Business Model Innovation (BMI)
2. White Space Opportunity

10. **Do you agree or disagree with the following definition for the term Business Model Innovation as adopted by the study: "A methodical, dynamic, recurring and dependable capability, possessing enterprise innovation, that is systematic in nature and that entrepreneurs, organisations and managers must construct, shape, reinforce and periodically transform to obtain a maintainable competitive advantage within new product/service markets in which the firm competes."?**

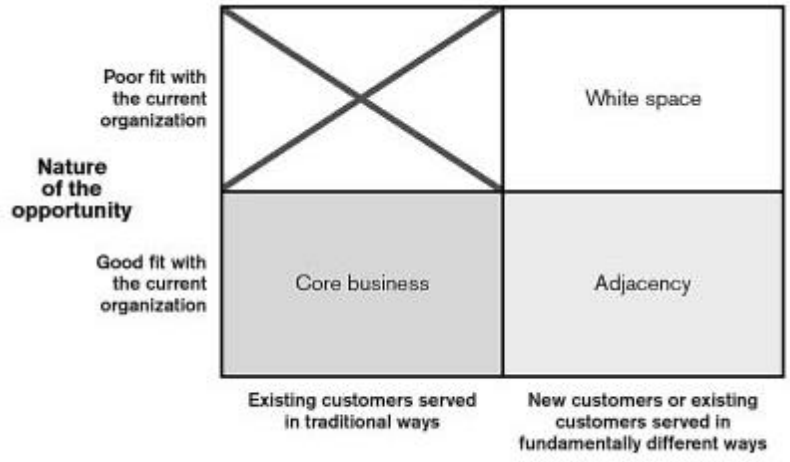
Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

11. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

_____

Illustrative definition of a White Space opportunity.



12. **Do you agree or disagree with Johnson's figure of a White Space opportunity and his following definition of a White Space: "The range of potential activities not defined or addressed by the company's current business model, that is, the opportunities outside its core and beyond its adjacencies that require a different business model to exploit."?**

Mark only one oval.

- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

13. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

Business Model Structure Validation

The table illustrated in this section is used to assist the design process for a new business model by illustrating the various business model building blocks and components which must be considered.

This section aims to validate how the Nine block business model's structure, the Four Box Business model's structure, and the Ten Types of Innovation structure fit into one another.
Additionally the components of all three frameworks are also validated.

Four box business model components	**Nine block business model components**	**Ten types of Innovation**
Customer Value Proposition	Customer Segments; Value Proposition; Customer Relationships.	Product Performance; Product System; Service; Customer Engagement.
Profit Formula	Cost Structure; Revenue Streams.	Profit Model
Key Resources	Key Resources; Key Partnerships; Distribution Channels.	Network; Structure; Brand; Channel
Key Processes	Key Activities	Process.

14. **Do you agree or disagree with how the similar components of the three frameworks are categorised and fit into one another?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

15. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

16. **Do you agree or disagree that the above table includes all the necessary structural components to be found within a business model?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

17. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

High-Level Phase Model Validation

This page aims to validate the overall high level phases framework.

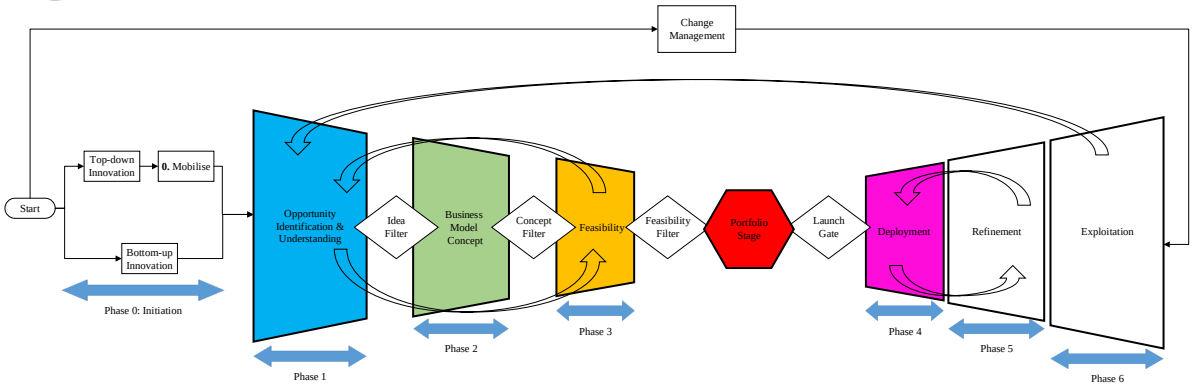
The colour of the striped phase outlinings surrounding the framework steps as shown in the summary document corresponds to the colour of the High-Level phases as seen in the figure below.

The approach of the figure below is to guide the proposed decision-making framework on a high phase level by using the following phases below:
- Phase 0 - Serves to describe how the High-Level Phase Model could be initiated.
- Phase 1 - Opportunity Identification & Understanding: This phase aims to identify a market opportunity and understand it in depth.
- Phase 2 - Business Model Concept Design: This phase aims to design an appropriate business model for the opportunity that was identified and understood in Phase 1.
- Phase 3 - Feasibility: This phase aims to assess whether the designed business model is feasible or not.
- Portfolio Stage: This stage aims to keep the new business model design until the time is appropriate to launch and deploy it.
- Phase 4 - Deployment: This phase aims to deploy the designed business model within the opportunity's environment through implementation methods leading to a detailed design through an iteration process.

The Change Management block oversees and manages the changes, resistances, business model innovation barriers and business model innovation enablers that is accompanied by business model innovation processes within organisations such as social, physiological, cultural and political issues to name a few.

Consider the information above and figure below before answering the related questions.

High-Level Phase Model



18. **Do you agree or disagree that Phase 1 to Phase 4 are sufficient and relevant as main and key high level phases?**

Mark only one oval.

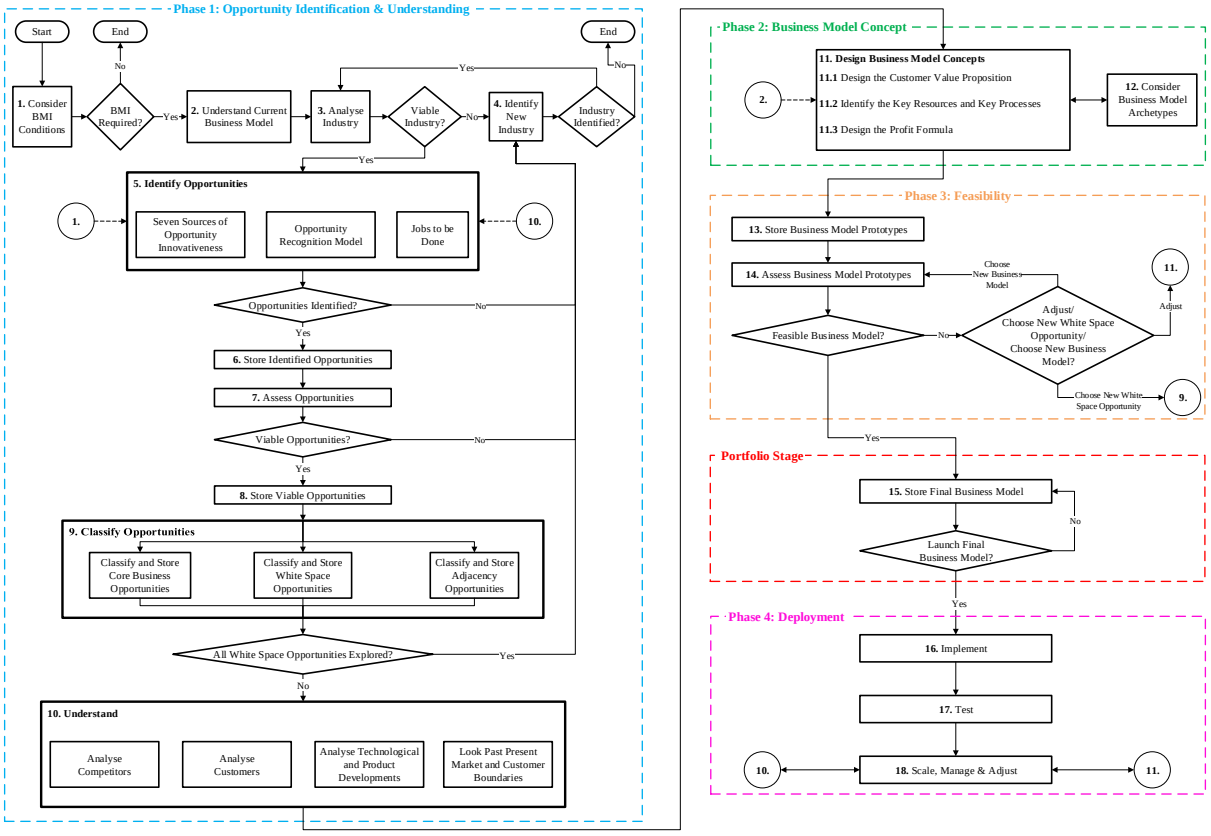
- ◯ 5. Strongly Agree
- ◯ 4. Agree
- ◯ 3. Undecided
- ◯ 2. Disagree
- ◯ 1. Strongly Disagree

19. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

20. Do you agree or disagree with the logical sequence of phases in the figure above (although it is not required to follow the phases in a strict linear fashion)?

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

21. If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.



Framework Phase 1 (Opportunity Identification & Understanding) Validation

This page aims to validate the Framework steps and process found within Phase 1: Opportunity Identification and Understanding.

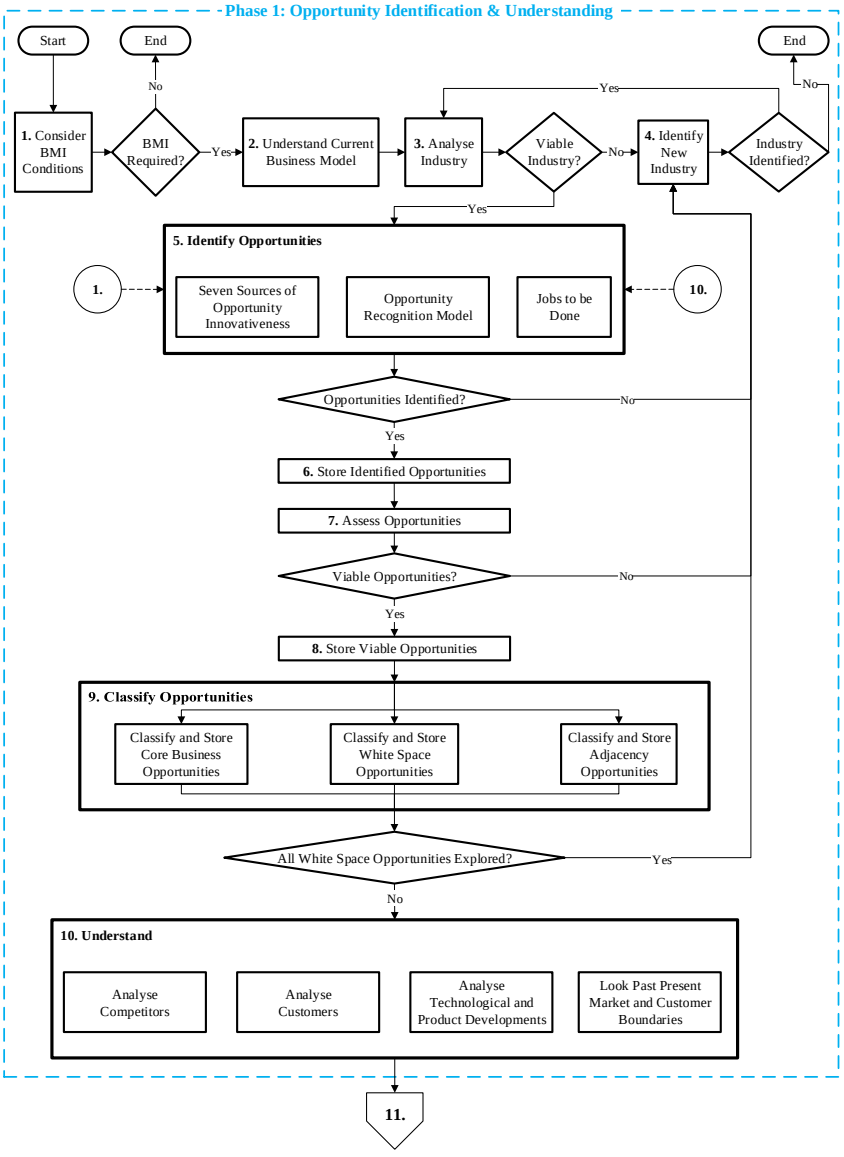
The general approach of Phase 1 is to identify a market opportunity, assess the opportunity, classify the opportunity as a white space and then gain an in depth understanding of the chosen white space opportunity.

As a recap, find the following step descriptions below:

- Step 1: Acts as a starting trigger. It contains business model innovation conditions conditions listing whether it is necessary to execute and use the business model design framework.
- Step 2: Understand the current/parent business model of the firm executing the framework.
- Step 3: Analyses a potential industry. If the industry is viable opportunities can be identified in Step 5, if not a new industry should be chosen in Step 4.
- Step 4: Identifies a new industry to be analysed. If a new industry could be identified it is analysed in Step 3, if not the framework process ends.
- Step 5: Identifies market opportunities through three tools and by considering Step 1 and 10 in a high-level manner. If opportunities were identified are stored in Step 6, if not a new industry should be chosen in Step 4.
- Step 6: Stores and pools together all the identified market opportunities.
- Step 7: Assesses the identified market opportunities through an internal, external and financial analysis. If no opportunities pass the assessment, a new industry is chosen in Step 4 and the process is repeated.
- Step 8: Stores and pools together all the viable market opportunities that passes the assessment in Step 7.
- Step 9: Classifies and ranks the opportunities as either a core opportunity, white space opportunity or adjacent opportunity.
- Step 10: Selects the top ranked white space opportunity and develops a deeper understanding through an in-depth customer analysis, competitor analysis, technological development analysis and finally by looking past present customer and market boundaries.

Consider the information above and figure below before answering the related questions.

Sequence of steps found in Phase 1.



22. **Do you agree or disagree with the approach and steps found within Phase 1?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

23. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

24. **Do you agree or disagree with the logical sequence of steps within Phase 1 (although it is not required to follow the steps in a strict linear fashion)?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

25. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

Framework Phase 2 (Business Model Concept Design) Validation

This page aims to validate the Framework steps and process found within Phase 2: Business Model Design Concept.

The general approach of Phase 2 is to design the business model by taking into account all the in depth information generated from Phase 1 and through the use of the following steps:

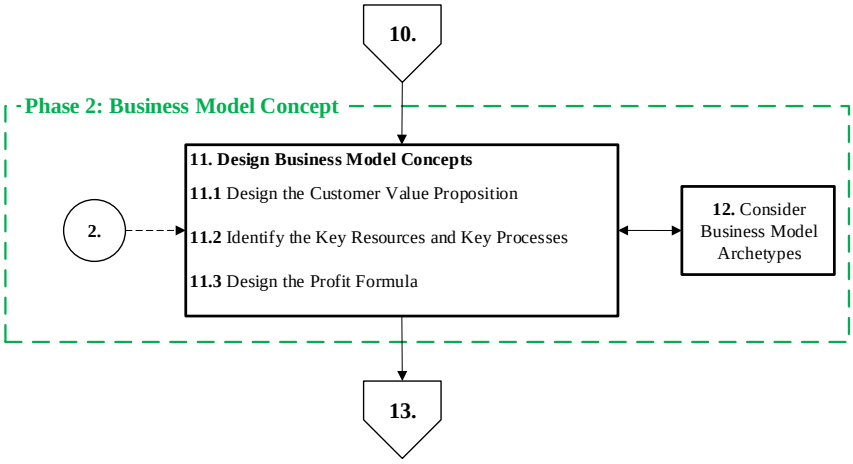
- Step 11: The four box business model structure is used in conjunction with the nine block business model structure and Ten Types of Innovation in order to generate a format for the new and innovative business model concept.

- Step 2: References back to Step 2 (Understand Current Business Model). Step 2 influences Step 11.1 by taking into consideration which aspects of your own current business model (such as Key Resources or Key Activities for example) the new business model design can utilise.

- Step 12: Influences Step 11.1 by contains 55 different business model patterns which can be used as a source of inspiration and ideas.

Consider the information above and the figure below before answering the related questions.

Sequence of steps found within Phase 2.



26. **Do you agree or disagree with the approach and steps found within Phase 2?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

27. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

28. **Do you agree or disagree with the logical sequence of steps within Phase 2 (although it is not required to follow the steps in a strict linear fashion)?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

29. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

Framework Phase 3 (Feasibility) Validation

This page aims to validate the Framework approach and steps found within Phase 3: Feasibility Stage.

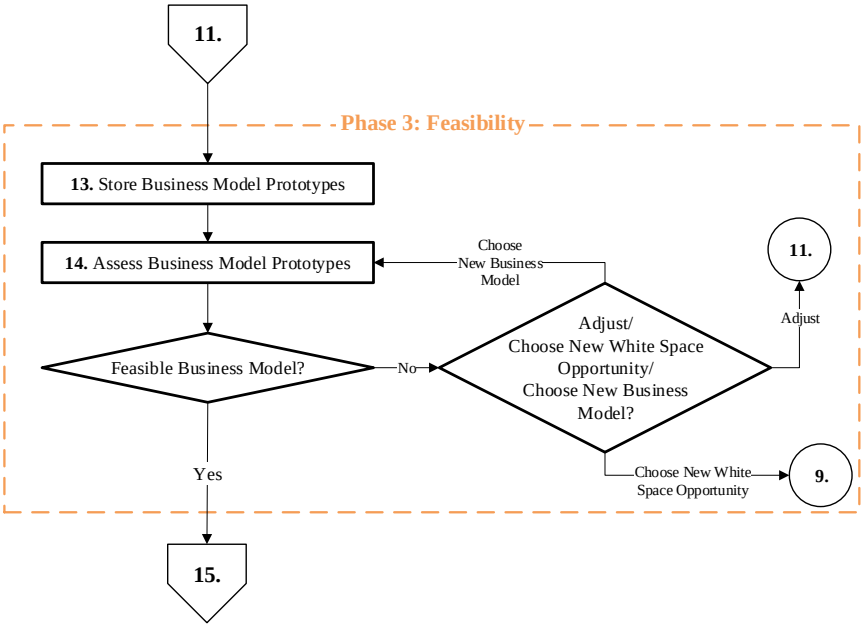
The general approach of Phase 3 is to capture and assess the business model prototype through the use of the following steps:

- Step 13: Stores and defines all the designed business model concepts into prototypes. A physical Value Proposition is additionally created.

- Step 14: Assesses the business model prototypes using various tools to evaluate whether it is feasible or not. If the prototype is not deemed as feasible the following decisions are possible: 1) The prototype is kept and adjusted in Step 11, 2) The prototype is discarded and the next best business model is chosen in Step 14 or 3) No prototypes were deemed as feasible and a white space opportunity is chosen in Step 9. Once deemed as feasible, the most successful prototype passes from Step 14 to Step 15.

Consider the information above and figure below before answering the related questions.

Sequence of steps found within Phase 3



30. **Do you agree or disagree with the approach and steps found within Phase 3?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

31. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

32. **Do you agree or disagree with the logical sequence of steps within Phase 3 (although it is not required to follow the steps in a strict linear fashion)?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

33. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

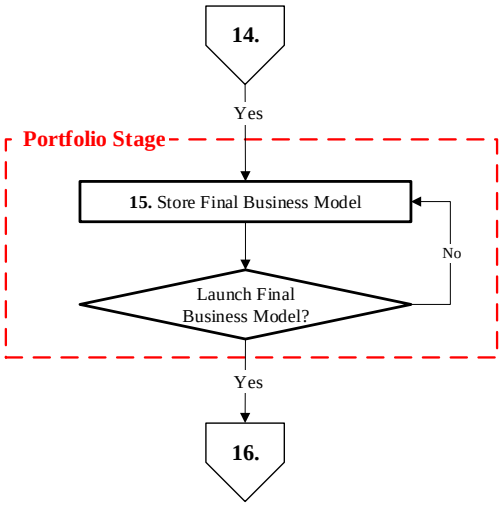
Framework Portfolio Stage Validation

This page aims to validate the Framework approach and step found within Phase 3: Feasibility Stage.

The general approach of the Portfolio phase, in Step 15, is to capture the final business model design as approved by Phase 3.
If the time is right to deploy the final business model design, it is launched and moves on to Step 16 in Phase 4 (Yes Output).
If the time is not right to launch the final business model design, it lies dormant in Step 15 (No output) where it is appropriately managed.

Consider the information above and figure below before answering the related questions.

Step found within the Portfolio Stage



34. **Do you agree or disagree with the approach and step found within the Porfolio Stage?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

35. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

Framework Phase 4 (Deployment) Validation

This page aims to validate the Framework approach and steps found within Phase 4: Deployment Stage.

The general approach in Phase 4 is to implement, test, manage and refine the newly designed business that has been approved by Phase 3 through the use of the following steps:

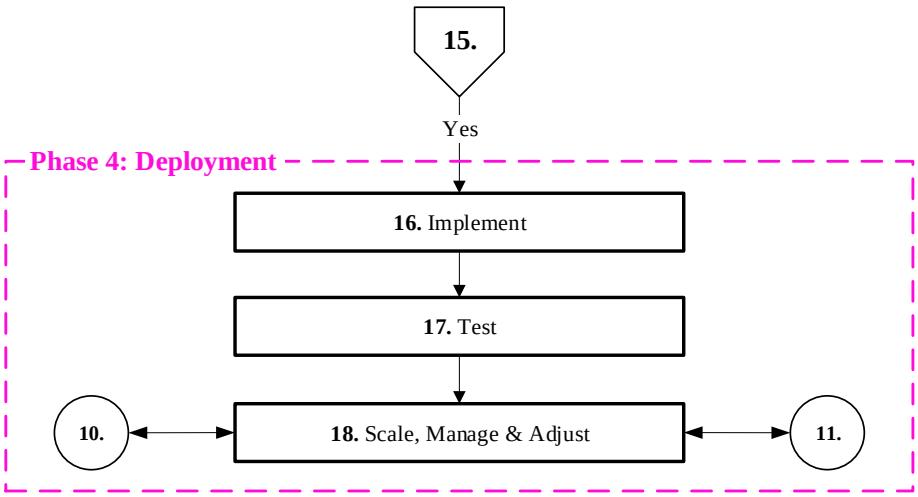
- Step 16: Implement the approved business model within the white space opportunity environment.

- Step 17: Operate and test the implemented business model within the the white space opportunity environment.

- Step 18: Lessons are learnt from Step 17, after which the necessary adjustments to Step 10 (Understand) and 11 (Design) are made. Additionally the final business model is managed and could be enlarged in scale.. This is all done in order to refine and optimise the designed business model over time.

Consider the figure below before answering the related questions.

Sequence of steps found within Phase 4



36. **Do you agree or disagree with the approach and steps found within Phase 4?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

37. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

38. **Do you agree or disagree with the logical sequence of steps within Phase 4 (although it is not required to follow the steps in a strict linear fashion)?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

39. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

Framework Usability

This section aims to validate the usability of the framework , its general features and main objective.

40. **The overall approach of the framework is to mobilise, identify, understand, design, assess, implement, test, and scale manage and adjust. Do you agree or disagree with these stages?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

41. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

42. **Do you agree or disagree that the framework is generic enough to be used within different industries and that it is not limited to a specific application?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

43. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

44. **Do you agree or disagree that the process of moving through the framework is rational and pilots a structured and organised decision-making process?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

45. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

46. **Do you agree or disagree that the developed framework would be effectively practical within industries and is not limited to a specific application?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

47. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

48. **Do you agree or disagree that the framework contains a substantiated, inclusive and comprehensive approach to the problem by integrating various fields of discipline.**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

49. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

50. **Do you agree or disagree that the framework is flexible and adjustable enough to be used within specific situations?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

51. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

52. **Do you agree or disagree that the white space business model innovation framework is capable of supporting companies to assist them in making better-informed decisions on how to systematically identify a white space opportunity and develop an innovative business model?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

53. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

54. **Do you agree or disagree that the developed framework makes a contribution to current literature?**
Mark only one oval.

- 5. Strongly Agree
- 4. Agree
- 3. Undecided
- 2. Disagree
- 1. Strongly Disagree

55. **If answer option 1, 2 or 3 is chosen, please give a detailed motivation/explanation of your answer choice. For all answer options, please give any improvements in detail which you think is necessary, if any.**

Appendix Z

Appendix Z contains the background information of each participant from the first design guideline survey.

2. Provide your name below.

Table Z1: Each participant obtains a reference number.

Participant Name	Participant Number	Participant Name	Participant Number
[redacted]	Participant 1	[redacted]	Participant 10
[redacted]	Participant 2	[redacted]	Participant 11
[redacted]	Participant 3	[redacted]	Participant 12
[redacted]	Participant 4	[redacted]	Participant 13
[redacted]	Participant 5	[redacted]	Participant 14
[redacted]	Participant 6	[redacted]	Participant 15
[redacted]	Participant 7	[redacted]	Participant 16
[redacted]	Participant 8	[redacted]	Participant 17
[redacted]	Participant 9	[redacted]	Participant 18

3. What is your Job Description/Title?

P#	Job Description/Title	Industry or Academic
1	Business Innovation Consultant	Industry/Academic
2	Fonder (former VP at SAP)	Industry
3	Business model innovation Lecturer	Academic
4	Professor	Academic
5	Lecturer	Academic
6	Manager Continuous Improvement	Industry
7	Consultant Innovation Management	Industry
8	Managing Partner | CEO	Industry
9	Professor in Strategy Development	Academic
10	Dean	Academic
11	Director & Dr	Industry/Academic
12	Innovation Coach and Consultant	Industry
13	Consultant	Industry
14	Director	Industry
15	VP Engineering	Industry
16	Partner	Industry
17	Senior Innovation Lecturer	Academic
18	Chief Innovation Officer, Dr & author	Industry/Academic

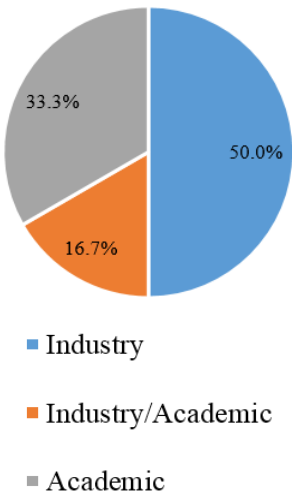


Figure Z1: Each participant's job description and industry/academic position.

4. Which of the following currently best describes your current job level?

P#	Job Level
1	Middle Management
2	Owner/Executive/C-Level
3	Owner/Executive/C-Level
4	Senior Management
5	Middle Management
6	Senior Management
7	Middle Management
8	Owner/Executive/C-Level
9	Senior Management
10	Senior Management
11	Owner/Executive/C-Level
12	Senior Management
13	Middle Management
14	Senior Management
15	Owner/Executive/C-Level
16	Owner/Executive/C-Level
17	Owner/Executive/C-Level
18	Owner/Executive/C-Level

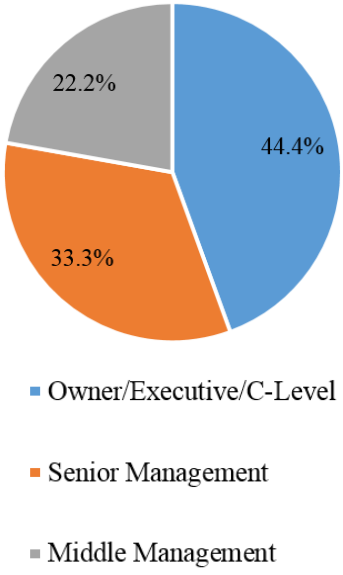


Figure Z2: Each participant's job level

5. Which of the following best describes the principal industry of your organisation?

Table Z2: Each participant's principle job industry

P#	Principle Industry
1	Other
2	Other
3	Education
4	Education
5	Education
6	Government
7	Healthcare & Pharmaceuticals
8	Other
9	Education
10	Education
11	Business Support & Logistics
12	Telecommunications, Technology, Internet & Electronics
13	Other
14	Business Support & Logistics
15	Manufacturing
16	Other
17	Education
18	Other

6. If "Other" was chosen in question 4 above, please specify the principle industry.

Table Z3: "Other" specified industries

P#	"Other" Industry
1	Innovation Consulting
2	Consulting
8	Innovation & Growth Consulting
13	Business model innovation consulting
16	Management Consultant
18	Professional Services

7. Have you ever been involved in a business model design or reconfiguration process?

P#	Yes/No
1	Yes
2	Yes
3	Yes
4	Yes
5	Yes
6	Yes
7	Yes
8	Yes
9	Yes
10	Yes
11	Yes
12	Yes
13	Yes
14	Yes
15	Yes
16	Yes
17	Yes
18	Yes

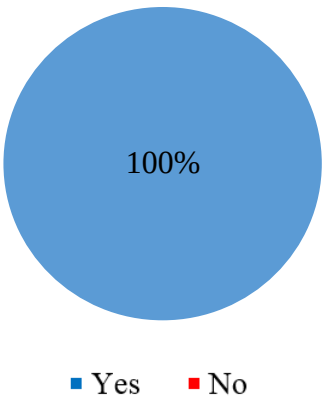


Figure Z3: Yes/No answer to question seven.

8. If "Yes" was chosen above in question 7, please elaborate further in order to provide more context.

Table Z4: Each participant's explanation to question seven.

P#	Business Model Design/Reconfiguration Explanation
1	I professionally support companies in creating innovative business models
2	-
3	I design business models for companies
4	Both in setting up an own business and in consultancy work for other organisations
5	Customer relationship management at KPMG
6	Business model design for consulting firm
7	Facilitated Business Model innovation workshops & worked/managed several innovation projects in which a new business model was developed
8	We work with wide range of clients on Corporate Venturing and Innovation Strategy topics, which includes also how the company can innovate related to its Business Model.
9	Was part of the ABSA central strategy department, new business development department, emerging market department and served as a consultant in all of these areas.
10	Involved in inclusive business model design/innovation
11	Facilitate Business Model Innovation and Business Strategy on a regular basis with companies of various sizes.
12	I am trainer, coach, project manager and speaker for BMI
13	As a spin-off of the St. Gallen University we put a business model innovation methodology developed by Professor Gassman and Frankenberger into practice. We have several offerings, an education programme, a think tank where academic and industry partners share insights in the field of business model innovation, 2-day cross industry workshops to introduce innovators to the methodology and consulting/advisory projects
14	Innovation consulting for 17 years helping clients to generate and elaborate new business opportunities
15	I have been involved with multiple start-up businesses requiring assessment of the business model to differentiate and/or optimize the new opportunities.
16	Launch of several new businesses
17	New products, technologies and start-ups
18	My team and I work with clients on their innovation/growth projects re-designing their business models

9. List the years of experience within one or more of the following research fields:

Table Z5: 18 Participants experience in five research domains

P#	Innovation & Innovation Management	Business Models	BMI	Business Strategy	White Spaces
1	3 Years <= Experience < 5 Years	3 Years <= Experience < 5 Years	3 Years <= Experience < 5 Years	3 Years <= Experience < 5 Years	3 Years <= Experience < 5 Years

2	5 Years <= Experience < 10 Years	3 Years <= Experience < 5 Years	3 Years <= Experience < 5 Years	3 Years <= Experience < 5 Years	5 Years <= Experience < 10 Years
3	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	3 Years <= Experience < 5 Years
4	Experience => 10 Years	5 Years <= Experience < 10 Years	-	Experience => 10 Years	No Experience
5	1 Year <= Experience < 3 Years	3 Years <= Experience < 5 Years	Experience < 1 Year	5 Years <= Experience < 10 Years	No Experience
6	5 Years <= Experience < 10 Years	3 Years <= Experience < 5 Years	3 Years <= Experience < 5 Years	Experience => 10 Years	1 Year <= Experience < 3 Years
7	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years
8	5 Years <= Experience < 10 Years	3 Years <= Experience < 5 Years	5 Years <= Experience < 10 Years	3 Years <= Experience < 5 Years	5 Years <= Experience < 10 Years
9	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years
10	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	No Experience
11	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	5 Years <= Experience < 10 Years	3 Years <= Experience < 5 Years
12	3 Years <= Experience < 5 Years	3 Years <= Experience < 5 Years	3 Years <= Experience < 5 Years	5 Years <= Experience < 10 Years	1 Year <= Experience < 3 Years
13	1 Year <= Experience < 3 Years	1 Year <= Experience < 3 Years	1 Year <= Experience < 3 Years	1 Year <= Experience < 3 Years	Experience < 1 Year
14	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years
15	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years
16	3 Years <= Experience < 5 Years	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years
17	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	5 Years <= Experience < 10 Years
18	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years	Experience => 10 Years

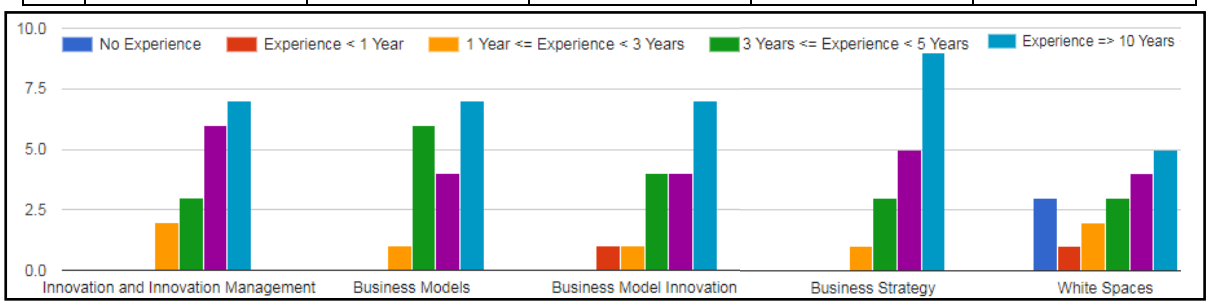


Figure Z4: Participant experience in five research domains

Appendix AA

Appendix AA contains the participant feedback received from framework validation's quantitative questions.

Table AA1: Feedback obtained in question 11 for question 10.

Question 10: Do you agree or disagree with the following definition for the term Business Model Innovation as adopted by the study: "A reconfiguration of activities within one or more of the building blocks of a business model which contains a methodical, dynamic, recurring and dependable capability, possessing enterprise innovation, that is systematic in nature and that entrepreneurs, organisations and managers must construct, shape, reinforce and periodically transform to obtain a maintainable competitive advantage within old or new product/service markets in which the firm competes."		
P#	**Comment**	**Solution**
2	you can combine the 9 building blocks to the 4 Questions: WHO (customer, channel, relationship)), WHAT (Value Prop), HOW (key partners, key resources, key activities), WHY (revenue, costs) -> if 2 out of 4 are changing, we talk about a business model innovation	See solution for Participant 12. If at least two questions change in the Triangular Business Model as suggested it results in more than 2 buildings blocks changing.
4	I like the purport of the definition, but some aspects make me disagree: I do not see BMI as being limited to a (re)configuration problem only; I cannot fathom why there has to be a recurring capability; I would rather state "must construct" implies an external actor, whereas "can construct" leaves room for own initiative. By the way: the wording "a business model which contains" is heavily dependent on reading "model, which" or "model that" - currently, the wording is in between a restrictive and non-restrictive clause, which renders it a bit vague.	**Alter Definition:** • **Refer to Figure 2.11 -** "a *new novel business model design* or reconfiguration of activities" • "managers *can* construct" • "of a business model *that* contains"
5	Just check if you can work in possible current capabilities and resources into the definition. Church tower can be used for telephone towers for example - innovation. - Not compulsory, just an extra comment.	Key Resources are contained within: "building blocks of a business model"
6	With BMI, you may also consider markets in which the firm does not currently compete (but wishes to), so the last section of your definition may not always hold true.	**Alter Definition:** "old or new product/service markets in which the firm *currently or wishes to compete in*."
9	Try to shorten the definition and use less adjectives.	**Alter Definition:** "business model which *is dynamically iterative in nature*, and that managers *can constantly reinforce* to obtain" **Remove from Definition:** "enterprise innovation"
10	I am missing a bit the human interface/link. There are other aspects at business model innovation I would say, like purpose, contribution, engagement, etc.	Human interface forms part of Customer Segments and Customer Relationships which are contained in: "building blocks of a business model"

12	An innovation and interaction of an existing BM need more change then in just 1 building block. I state: a new BM need changes in 2 or more simultaneously.	**Alter Definition:** "a reconfiguration of activities within *two or more* building blocks *simultaneously*"
13	I agree with nearly everything, but I would say that a business model innovation means a reconfiguration of more than one building blocks of a business model. If it is just one element, for example the value proposition, you would speak of merely a product/service innovation. If it would be only the customer channels/value chain you would speak of a process innovation. When taking a holistic approach towards innovation within multiple elements of a business model, we speak of a business model innovation.	See solution for Participant 12.
14	Too complex ... and it is more than reconfiguration; it is often imagining something completely new	Complexity addressed in Participants 9's solution. Concept of "new" addressed in solution to Participant 4
15	I tend to avoid definitions that try to encompass every nuance in a lengthy multi-line sentence. While it may be correct as an engineer would try to construct, it is nearly unusable in a business strategy process. After the third or forth comma, trying to understand the definition becomes an exercise in and of itself. It needs to be simplified to its essence, not containing superfluous details that would naturally be included in the detailed process flow.	Complexity addressed in Participants 9's solution**.**

Table AA2: Feedback obtained in question 13 for question 12.

Question 12: Do you agree or disagree with Johnson's figure of a White Space opportunity and his following definition of a White Space: "The range of potential activities not defined or addressed by the company's current business model, that is, the opportunities outside its core and beyond its adjacencies that require a different business model to exploit."		
P#	**Comment**	**Solution**
4	Stupid as it may seem: the definition in itself does not rule out the "Poor Fit/Existing Customer" area.	Disregard. This is not deemed as important enough to include within the final definition.
10	It is his definition, hence it is not up to me to agree or disagree. What is said makes sense, but could be said differently	Definition makes logical sense to Participant 10.
11	I think the Ansoff Matrix covers some of these aspects better.	Disregard. Ansoff's matrix is more concerned with old/new markets and products and the growth strategy required for each. This is more applicable to the Exploitation Stage.
14	A white space can actually be a good fit with an organizations current state	Disregard. This is opposite of a white space and contrary to the rest of the group consensus.

Table AA3: Feedback obtained in question 15 for question 14.

Question 14: Do you agree or disagree with how the similar components of the three frameworks are categorised and fit into one another?		
P#	**Comment**	**Solution**
9	Consider putting the Distribution Channel as part of the Customer Value Proposition.	This supports Participant 2's comment in Table AA1. **Alter Table:** Make Distribution Channels part of CVP.
10	I am missing the human dimension	The human dimension is covered in Customer Segments and Customer Relationships.
17	"fit into one another" intuitively makes sense but since these terms are not defined or referenced to source, the respondent has to guess if terms are mutually inclusive or exclusive. Such guessing may impact validity of findings.	Disregard. All three frameworks were illustrated and explained along with their references in the summary document.

Table AA4: Feedback obtained in question 17 for question 16.

Question 16: Do you agree or disagree that the above table includes all the necessary structural components to be found within a business model?		
P#	**Comment**	**Solution**
3	There is an element on business models which involves an internal company component. Mission/ leadership. Business models fail when this isn't in place	**Add new business model component:** Mission.
4	From an Industrial Engineering viewpoint, I agree; however, being a technical engineer, I always seem to miss the technical feasibility/applicability - but unfortunately I do not know of any models that capture such a 'sanity check'.	Technology falls under Key Resources according to Johnson (2010b).
6	There are various models and frameworks describing business models in the literature, including grey literature. It is hard to say if this framework covers all that are necessary, but it does appear to be complete enough.	No Solution. Participant agrees.
9	The business model canvas must have the following extra 3 components to convert it into an 'extended' business model canvas: 1. Customer Retention: This is the big battlefield - Goes into CVP. 2. Key Metrics: Core indicators of business progress and success. - Goes into Profit Formula. 3. Competitive Advantage: When speaking about strategy, everything in the canvas is done to gain a sustainable competitive advantage. - Also goes into CVP because a competitive advantage only has value if the customer can feel it.	**Add new business model component:** Key Metrics.
		Disregard Customer Retention. It is provided for under Customer Relationship - how you communicate, build trust and keep customers.
		Disregard Competitive Advantage. It is a result of the specific business model being designed.
10	As mentioned the human interface, and finally purpose.	Human interface falls under Customer Relationships.
		Purpose forms part of Mission.

Table AA5: Feedback obtained in question 19 for question 18.

Question 18: Do you agree or disagree that Phase 1 to Phase 4 are sufficient and relevant as main and key high-level phases?		
P#	**Comment**	**Solution**
3	First you need a broad understanding of the macro and micro environment to identify trends, social and economic problems etc before being able to accurately identify opportunities. And you need the appropriate sensing, learning structures. That is a phase 1.	Disregard. This does take place within Phase 1 from Step 3 to 5. Step 10 is referenced in Step 5 where Step 10 does receive a refinement loop from Step 18.
6	My only reservation would be the Portfolio stage – I am not sure that you will have multiple white space business models chosen for implementation (contained in a portfolio). Implementing new business models are time consuming, expensive and difficult to do. You won't be rolling out a few every year. Yes, you should manage the implementation, but I am not convinced that you would have a portfolio of business models. You should have narrowed that down in your prototype stage.	The Portfolio Stage only contains one business model as explained in the survey and summary document.
7	Phase 1 is clear as high level phase. Phase 2 is also clear. Phase 3 as well (addition: in this step a deep dive into the target group, the first validation of the benefits of the value proposition with customers is needed already in this phase). What is unclear to me is the portfolio management phase. For instance, during portfolio management within Philips we analyse and select the most interesting innovation projects and identify white space. So also project in phase 1-3 are part of portfolio management in which learnings and progress of the projects are monitored. So this is not a separate phase but an underlying process to manage all innovation projects in all different phases. Last phase as high level clear.	**Alter Portfolio Stage position:** Span Portfolio Stage across the entire High Level Phase Model with input and output connections to each phase. **Alter Portfolio Stage concept:** It is an overall innovation portfolio where BMI is managed as part of this portfolio. **Rename Portfolio Stage to:** Portfolio *Management*
9	Although it has been highlighted as being flexible, the picture itself creates a too linear sequential impression of the process. Innovation processes are iterative at all phases and have feedback loops in all phases which this picture does not show - Rectify the picture to make it more iterative and flexible.	**Alter High Level Phase Model:** Illustrate the forward feedback mechanisms more explicitly as shown in Section 6.3.3.
10	While it is indicated the feedbacks are important	See solution for Participant 9.
13	Does phase 1 include a customer need or problem analysis? And does phase 3 include the identification, prioritisation and testing of key assumptions?	Phase 1 does include a customer need and JTBD (customers main problem) analysis. Phase 3 (Feasibility) tests the assumptions generated in Phase 2 (Business Model Concept).
15	If you remove the word Phase and replace it with Activity, then I might agree. Phase implies a time-sequence, when in reality there are likely bits and pieces of each of the named activities occurring in non-linear ways for true innovation.	See solution for Participant 4 in Table AA6.

Table AA6: Feedback obtained in question 21 for question 20.

Question 20: Do you agree or disagree with the logical sequence of phases (although it is not required to follow the steps in a strict linear fashion)?		
P#	**Comment**	**Solution**
4	If the claim is that the model is flexible, deliberating the logical sequence of phases is void. If the sequence is logical, there will not be a reason to deviate; if there is a reason to deviate, there probably is an issue with the logic of the sequence, or more likely with the understanding/logic/interpretation of the context in which the model is used.	Phases were used for reference purposes within the research study. **Alter High-Level Phase Model:** Remove phase labels.
7	Portfolio management as mentioned above.	See solution for Participant 7 in Table AA5.
9	Change management is good - very important.	Supports inclusion of Change Management.
15	See my answer above. I don't think the process should have one entry and one exit point. It enters from anywhere in a matrix of possible activities, and will bump around all of them as different layers of detail are pursued. It is also safer and more practical to execute in small, circular iterations through all of the first four activities in a spiral manner (and maybe all the way through deployment, as it may be the only way to really get the market feedback you're looking for). This limits your investment, time wasted and risk. You want to get the fastest feedback you can from the smallest investment to decide to move forward down a specific path or to abort. The reason is because most of these will fail, so try to do as many as possible to find the one or two that might succeed. To think that you can gain all of the information required from any one activity before moving to the next, especially for a White Space initiative, is naive.	Addressed in Participant 9's solution in Table AA5. Future Research: Concept of spiral loops.
18	I would take the concept stage and feasibility stage into three stages - concept stage (idea generation and selection), Business Model Design Stage (system design and alignment) and Demonstrate phase (feasibility testing and validation)	Disregard. This does not add value, but only renames Phases 1 to 3 with the purposes staying the same.

Table AA7: Feedback obtained in question 23 for question 22.

Question 22: Do you agree or disagree with the approach and steps found within Phase 1?		
P#	**Comment**	**Solution**
4	Again, I like the overall picture in the model, but also here I do not like the model both being a 'flow diagram' and being flexible at the same time. This especially, because the model in itself assumes a deviation from its own logic/sequence. After all, step 5 assumes information/knowledge on step 10 is already available, although there is no 'indicated' way to move to step 5 once one is in step 10. But what is more important, to me, many of the arrows lose their denotation if the model can be flexible in itself; then I at least need to understand/capture the reasons for deviations, as these reasons probably help to connect the model to reality/context.	The second and fifth framework features from Section 1.3 describe the framework as being flexible and structured. Additionally Frankenberger *et al*. (2013) states that an acceptable paradox is able to exist between structure and flexibility within BMI.
8	I think that White Spaces also depend not just on the Core Competences of a company being deployed in the Top-Right corner of the White Space matrix, but also on the mix of technologies (not in the common term, but as a set of existing assets) coming from different industries (especially tech/IT/digital). For example: LEGO creating white spaces connecting their physical products with a digital layer and therefore enabling a huge new business opportunity that is fundamentally different than the one before (even if in the same industry).	Disregard. The six paths tool, from the Blue Ocean Strategy, in Section T.5 looks across present market and customer boundaries by considering other industries and complimentary products amongst other things.
9	Referencing Step 1 and 10 to step 5 is very good. I agree with all the considerations in Step 10. But add in 17 sustainable development goals for the millennium into Step 10. It has to do with solving the worlds problems to make it a better place by 2030 - provides a bigger context for understanding - and can act as a source of extra opportunities.	Supports Step 1 and Step 10's reference to Step 5, as well as Step 10's components. **Add an additional action in Step 10's component – Look Past Present Market and Customer Boundaries:** Consider the 17 sustainable development millennium goals.
12	The main trigger for change comes from step 3 industry analysis - this is not sufficient. Triggers can come from many other sources like reports, mergers & acquisitions, technology changes, trends, consumer behaviour etc.	The main trigger for change comes from Step 1 where these issues are addressed.
13	In step 5 I would include an analysis of customer needs through interviews, observations and immersions to add a qualitative element to the understanding of the size of the opportunity.	This is addressed in Step 5 with the reference to Step 10 where a Customer Analysis is done.
14	Step 7: you need a step before this to determine the assessment criteria	For future research: Validate all tools in all steps.
15	I mostly agree, but step 7 needs to include an assessment that leverages current company assets or strengths, and thus an assessment of those much like a SWOT. Too often, blue sky initiatives are colossal failures due a complete mismatch with abilities and resources the company currently possesses.	**Add an additional action in Step 7:** Execute a SWOT analysis in terms of the opportunities identified. **Rename Step 7 to:** Opportunity Assessment

17	Competitor analysis only mentioned in step 10 which is too late. Competitive advantage has to be understood much earlier and Step 3 appears to be appropriate?	One of the considerations in Step 3 states: Analyse the competitive forces found within an industry.

Table AA8: Feedback obtained in question 25 for question 24.

Question 25: Do you agree or disagree with the logical sequence of steps in Phase 1 (although it is not required to follow the steps in a strict linear fashion)?		
P#	**Comment**	**Solution**
4	Although rather formally: I do not like the escape route of step 10 in step 5 - for me, this seems to undermine the logic of the model.	Step 10's reference in Step 5 initiates a generic high-level understanding only.
7	Although I really like the total steps, I would restructured it a bit. In the beginning phase, the analyses phase, I would extend it further than industry analyes. What you typically do during a first phase (of strategy development or white spots identification) is an extensive internal and external analyses. Internal analyses includes current business model (but also financials, competences etc). External analyses includes industry trends, but also new needs of customers, competitive developments, market developments, technology developments and even environmental or political developments. Part of those items is see coming back in step 10. I would normally to through these steps before opportunity identification (step 5). than classify it. and than go to phase 2 of the overall process (business model design).	Step 1 and 3 takes into account external factors mentioned such as industry trends, competitive forces, new customers and technology forces. All of this occurs before Step 5. Step 10 also includes an external analysis of the environment which is referenced in Step 5. The final component of the Opportunity Assessment Framework in Step 7 entails an internal analysis.
9	Step 4 must consider the area between industries - not only industries themselves. Opportunities do traditionally lie within industries but to be more innovative consider the merging of industries. Take Telecom & Financial services-innovativeness lies between the merger: FinTech	**Add additional action in Step 4:** Consider the area between industries and the merging of industries.

Table AA9: Feedback obtained in question 27 for question 26.

Question 26: Do you agree or disagree with the approach and steps found within Phase 2?		
P#	**Comment**	**Solution**
5	I agree very strongly with the business model archetypes - very good.	Supports inclusion of Step 12.
8	My experience in Corporate venturing (and in working with startups) tells me that we shouldn't plan too much, but once a Value proposition / idea is found, to test it with a minimum budget / risk profile (see also: Minimum Viable Product, Pretotyping, Fast Prototyping), before actually deciding P&L formulas, budgets and resources.	See solution for Participant 13.
		Supports quick and dirty prototyping of Value Proposition in Step 13.

10	Can't say it enough but you do need the human dimension, purpose and contribution somewhere, and possibly the best place would be here	The information output from Step 10, and more specifically the Customer Analysis, leads straight into Step 11.
		See solution for Participant 13.
13	I would first do a validation round with customers to verify or falsify the key assumptions around the value proposition and the customer needs you address of the problems you solve before you start with step 11.2	**Add additional action to Step 11.1:** Validate the design of the CVP with customers.
		Alter 11.1 heading: Design the CVP *and test with customers.*
17	Unclear where co-creation belongs and where customer value proposition is tested with market?	See solution for Participant 13.

Table AA10: Feedback obtained in question 29 for question 28.

Question 28: Do you agree or disagree with the logical sequence of steps in Phase 2 (although it is not required to follow the steps in a strict linear fashion)?		
P#	**Comment**	**Solution**
1	After having checked problem/solution fit through customer value proposition check, I would consider the profit formula before looking at key resources. If the customer doesn't pay for the solution, it is not necessary to consider the rest.	Disregard. This was proven to be wrong in Chapter 5. The design sequence in Step 11 is additionally flexible.
4	Although the meaning of the arrows is not specified, for me it would make sense if the business model archetypes could be used as an input for Design; currently, this does not seem to be possible. If this is possible via the 'flexibility in the rectangles', the way in which this interaction takes place is rather unspecified.	Instead of being used as an input, Step 12 aims to be used alongside Step 11, as mentioned in the comment from Participant 6 below.
6	I do see that there will be an interplay between 11 and 12, influencing each other until you get a final business model concept	Supports the positioning of Step 12.
7	What I found out is that this is mostly an iterative process. We create very fast a first business model design and then start testing it asap (in lie with the lean start-up methodology). So, phase 2 (this one) and 3 (feasibility) is an iterative process.	Supports feedback loop from Step 14 and Step 18 back to Step 11.
9	I especially like the referencing back to your current business model and the business model archetypes.	Supports Step 2's reference and Step 12's inclusion.
13	There should be room for as much iterations as needed to get a fit between the value proposition and customer need/problem before you continue.	Addressed in Participant 13's solution in Table AA9.
	You can also use business model archetypes or patterns to innovate/ideate in the resources, activities and profit formula elements of a business model.	Supports Step 12.

Table AA11: Feedback obtained in question 31 for question 30.

Question 30: Do you agree or disagree with the approach and steps found within Phase 3?		
P#	**Comment**	**Solution**
6	It is difficult to rate without knowing the detail about what happens in the prototype stage. Does it cover actual market testing on small scale, initial customer testing of the idea conceptually..? If it is similar to the prototyping steps as described by the business model canvas, then yes, the sequence and steps will make sense.	**Add additional actions to Step 13 from Osterwalder and Pigneur's (2010) Prototyping Technique:** 1) Napkin Sketch, 2) Elaborated Canvas, 3) Business Case and 4) Field Test
7	As mentioned in my previous answer, I see this as an iterative process. Also key validation in our approach is validation of the benefits of the product/service in an early stage with customers	Supports feedback loop from Step 14 back to Step 11.
		Supports added initial CVP design validation in Step 11.1 and quick and dirty prototyping of the Value Proposition in Step 13.
		See solution for Participant 8.
8	Here we try to force an Assessment that should definitely come from the market and should therefore strictly follow metrics from the tested variables. For sure BM Prototyping is important to test certain new BM (for example, what pricing do I set for a potential new service/product? What kind of process is needed to execute a certain BM?). There should be a stronger reiteration of all the Phase 1 (Step 10) + Phase 2 + Phase 3, in order to kill certain BMIs early on, without the need of an assessment or a final Phase 4 testing.	**Add additional feedback loop:** From Phase 2 and Phase 3 back to Step 10.
		Delete Step 17: Step 17's concept is covered in the Field Test in the solution to Participant 6.
9	In Step 14 the extra business model component called 'key metrics' can be considered.	Supports inclusion of the simulated Profit Formula tool in Step 14.
12	What you call Assessment is one of the most critical phases and therefore to high-level. It needs to be better reflected that a BM prototype has to be challenged by something like a "build-measure-learn" approach as well.	**Alter Phase 3 -** Combine Steps 13 and 14 into a step called: Feasibility Testing.
		Emphasise build, measure and learn approach in Phase 3.
13	I would test the individual elements of a business model at an earlier stage and validate the key assumptions per element before you create a business model prototype. This approach is quicker and cheaper. It is also not clear to me how the business model assessment is executed	See solution for Participant 13 in Table AA9.
14	Experimentation should be emphasized here.	See solution for Participant 6 and 12.
	Also, "customer acceptance and willingness to pay" should be the first thing tested	Supports CVP validation in Step 11.1.
15	It may not be possible to execute a prototype of a business model without actual deployment of a real product or service. Very often, especially in a completely new space, the business model evolves due to necessary changes and rapid learning and adjustment. Attempting to put too much effort into this activity will likely be a waste of time.	Supports quick and dirty prototyping of the Value Proposition.
		Supports fast and cheap build, measure and learn approach.

Table AA12: Feedback obtained in question 33 for question 32.

Question 32: Do you agree or disagree with the logical sequence of steps in Phase 3 (although it is not required to follow the steps in a strict linear fashion)?		
P#	**Comment**	**Solution**
7	Iterative	See solution for Participant 8 in Table AA11.
14	This can be simplified: 1. Do the customers want it? 2. Can we do it? 3. Can we make money doing it?	Point 1 is covered by adjusted Step 11.1 – See solution to Participant 13 in Table AA9. Point 2 and 3 is determined by executing Phase 3 and its feedback loops.
15	A defined phase or activity with total of two steps is just screaming to be integrated into another larger set of activities. It's not really stand alone and is slicing the pie a little too thinly.	See solution for Participant 12 in Table AA11. Phase 3 is very comprehensive and in depth containing numerous actions/tools.
18	I see your logic now, but it's only one of the ways to do business model design. You can create a very different business model by just using different approach to value creation partner. So looking back I am afraid your step 11 may be limiting.	Disregard. Not enough motivation is given as to why Step 11 may be limited.

Table AA13: Feedback obtained in question 35 for question 34.

Question 34: Do you agree or disagree with the approach and step found within the Portfolio Stage?		
P#	**Comment**	**Solution**
4	This seems to be an endless loop by definition once one chooses 'no'....	**Insert new separate storage action for *No* output:** Store Final Business Model in Portfolio
5	Although I know of certain people that might question this stage, I strongly agree with it. The business model must be stored, but a person must take responsibility and manage the portfolio and match it with the external environment to ensure that the prototype is launched at the correct time. Conditions can be specified for each business model in the portfolio to be launched according to the opportunity - something to look at. Kodak had 1000's of patents yet they did not manage it correctly in terms of a responsibility framework.	See solution to Participant 7 in Table AA5. **Rename Step 15's heading to:** *Specify and Consider Final Business Model Launch Conditions*. **Additional action in Step 15:** Specify launch conditions for the business model.
6	But do note my previous comments relating to this step. I am not sure that you will have a large portfolio of business models.	See solution for Participant 6 in Table AA5.
7	See my previous answer on portfolio management; we use this as a process for all the phases	See solution to Participant 7 in Table AA5.

9	Consider using an other name as 'Portfolio' - this step should possibly consider a 'market readiness assessment'. If the market is ready, the final concept is launched, if not it stays. Due to the flexibility of the overall framework, this market assessment can then also be done in Step 10 so that when the final white space business model reaches this stage it can just be launched. The market readiness assessment can also influence the design.	**Rename Phase 3's heading to:** *Full Deployment Assessment Phase*. This will serve as the new storage and key decision-making point.
15	This a standalone activity, and thus effectively useless as a major top level step. Simplify the whole top level process and combine this with another activity.	See solution to Participant 7 in Table AA5.
18	Overall, as an academic I am impressed with the quality of work, especially if this is for a Master's level thesis. Great job!!	No solution.

Table AA14: Feedback obtained in question 37 for question 36.

Question 36: Do you agree or disagree with the approach and step found within the Phase 4?		
P#	**Comment**	**Solution**
2	First test then implement	Supports new Phase 3 design in Table AA11.
6	It may not require full iteration, but just refinement of the business model. I do like the idea of reviewing and refinement, so that it is not a static model.	Supports Step 18.
7	I see testing as something you do in all phases	Addressed by the iterative nature of the High-Level Phase Model.
8	See my other comments. I think testing after all of this, is too late and increases the complexity of knowing which of the elements / variables / constraints of the BM that we are innovating is providing as a problem in terms of subsequent growth and validation.	Supports new Phase 3 design in Table AA11.
	It would be interesting to use the methodology with actual tools / methodologies on 1-2 organizations and see the real-word benefits of the efficiency/effectiveness gained with the tool vs. setup costs/resources spent.	Future Research: Case study and tool validation.
15	This is consistent with my earlier set of statements about the whole process. #18 is the key to the whole thing from the beginning, and thus the entire process can be scaled down into a number of spiral loops that increase in scope and scale as more is learned, or to abort. Alternatively, provide an inner spiral for the first few activities and then an outer spiral for deployment and assessment. Any new white space business is fraught with unknowns and risk, and so early detection and adjustment will be the key.	Future Research: Concept of spiral loops.
17	As mentioned before early customer engagement is critical for business model innovation and to only introduce testing of ideas in step 17 may be too late, especially if the product is a new technology or service for which customer experience has not yet been established.	Supports new Phase 3 design in Table AA11.

Table AA15: Feedback obtained in question 39 for question 38.

Question 38: Do you agree or disagree with the logical sequence of steps in Phase 4 (although it is not required to follow the steps in a strict linear fashion)?		
P#	**Comment**	**Solution**
7	Iterative	See solution for Participant 8 below.
8	I don't think that Implementation, Test and Scaling up are such linear processes, they are highly iterative and usually across different levels of your so called "Phases".	Feedback loops in the High-Level Phase Model and from Step 18 iterate back to other steps and phases.
		Step 17 (Test) was removed and made part of Phase 3 (Feasibility) which is highly iterative.

Table AA16: Feedback obtained in question 41 for question 40.

Question 40: The overall approach of the framework is to mobilise, identify, understand, design, assess, implement, test, and scale manage and adjust. Do you agree or disagree with these stages?		
P#	**Comment**	**Solution**
7	But test, learn and adjust asap (don't spend too much time on designing, assessing and implementing)	Addressed in Table AA11.
8	See my comments in the sections before	Comments were appropriately addressed.
9	More flexibility and iterations are required.	Addressed with more explicit illustration of feedback loops in the High-Level Phase Model and additional feedback loops from Phase 2 & 3 to Step 10.
13	There should be more emphasis on the creative aspect of designing new business models within the framework. For example, empathy building and creative ideation	Covered in Step 10 where an empathy canvas and other creative tools are used which generate ideas and opportunities.
15	It can be one cycle, or more likely, it is a series of smaller cycles with different groupings.	Future Research: Concept of spiral loops.
17	If my earlier comments are to be visibly integrated in the model I can give it a 5 rating because what is mentioned is necessary.	Comments were appropriately addressed.
18	Yes, that's why it is important to list all the assumptions under each box of the business model and test them (cheap and fast) before investing in a big way.	Supports the use of the Design Guidelines in Step 11.
		Addressed in Table AA11.

Table AA17: Feedback obtained in question 43 for question 42.

Question 43: Do you agree or disagree that the framework is generic enough to be used within different industries and that it is not limited to a specific application?		
P#	**Comment**	**Solution**
5	There is enough leniency to be flexible enough for different industries - the feedback loops cover this.	Supports feedback loops.
13	It depends on the different archetypes that you use in the feasibility phase how agnostic your framework will be. Furthermore, in practice, we have found out that a certain framework works very well (the quite similar Business Model Navigator) but when you are exploring very new areas such as circular business models or Data and IoT-based business models such a framework is lacking certain elements. In this case, it would make sense to intensify the technology analysis and focus on finding new business model patterns that have been made possible by these technologies	A technology analysis is performed in Phase 1 within Step 10 (Understand) which can assist the consideration of business Model Patterns in Phase 2 within Step 12 (Consider Business Model Archetypes).
17	Appears to be designed for hard product environment; what about services? Remember services are intangible and emotive issues play an important role in establishing new brands.	Services are considered throughout the framework such as in Step 1, guidelines $VP1_3$ and $VP10_3$, Outcome Expectations tool and Ten Types of Innovation Framework in the CVP.

Table AA18: Feedback obtained in question 45 for question 44.

Question 44: Do you agree or disagree that the process of moving through the framework is rational and pilots a structured and organised decision-making process?		
P#	**Comment**	**Solution**
4	I'd rather say, the framework is a foundation for decision making, rather than being a 'decision-making process' itself. To be a 'decision-making process', at least a specification of HOW decisions are made is required.	Covered in Section 1.7.
6	The detail within the steps will be critical though to determine how effective it is to help with the 'how to do it' question	Validation of step content and tools is for future research. However the steps do explicitly describe how and what should be executed.
7	But again, it would faster test and learn when designing a new business model (phase 2 - 3)	Addressed in Table AA11.
8	I agree, but I'm not at all sure that it is going to reach the BMI objectives of companies, because of the reduced reiterative nature	Addressed with more explicit illustration of iterative loops in the High-Level Phase Model and additional feedback loops from Phase 2 and 3 to Step 10.
14	Somewhat too complex	See solution for Participant 15.

15	I believe it is too complex in its current form and can be simplified with fewer high level activities and detail pushed to lower levels. I think a multi-tiered set of activities that each has 4-5 steps each would be much easier to comprehend and use. The danger of trying to create an all-encompassing process is that no one will use it due to the overwhelming amount of detail that one has to absorb to comprehend it.	The framework can be seen as a reference framework that is generic and more comprehensive - will be adapted and simplified when used in a practical case study.
	Also, as I've harped on, it needs to be implemented in small bites in rapid succession, not like an academic study creating a comprehensive analysis with a conclusion. That works for analyzing what exists today, but not for innovation activities.	Addressed in Table AA11.

Table AA19: Feedback obtained in question 47 for question 46.

Question 46: Do you agree or disagree that the framework would be effectively practical within industries?		
P#	**Comment**	**Solution**
4	I simply cannot be the judge of that, because in my view, its success heavily depends on the implementation (method).	Detailed implementation is outside the scope of this study.
5	The change management is good - extremely important for practicality in the workplace. A CEO could be resistant to this initially, but this framework should not inhibit out the box thinking etc, but it shows due process that follows to the end. - Current thinking processes can still be used but this framework should also be considered for extra value and assistance.	Supports inclusion of Change Management.
		Framework can be used for additional value and assistance in the workplace.
	This framework can be used as proof of corrective steps that should of been taken - responsibility and accountability management.	Framework can be used for responsibility and accountability management and as a design process reference.
6	I don't think the framework is limited within any industry. Would be interesting to have a look at how maturity or life cycle of an organisation will influence it (i.e. startup vs established organisation)	Supports the generic nature of the framework.
		Future Research: Case study involving Start-up and established organisations.
9	As it stands now maybe not. But if more flexibility, non-linearity and iterations are added it certainly can be.	Addressed with more explicit illustration of iterative loops in the High-Level Phase Model and additional feedback loops from Phase 2 & 3 back to Step 10.
13	In practice we do see that there are multiple bottlenecks that need to be dealt with before actual implementation takes place. You need strong support from at least one board member who will also sponsor you financially.	This is covered in the mobilisation step where management approval and resources such as money is requested. Change management can assist in this.
14	Again, too complex	See solution for Participant 15 in Table AA18.
15	Already answered above.	See solution for Participant 15 in Table AA18.

Table AA20: Feedback obtained in question 49 for question 48.

Question 48: Do you agree or disagree that the framework contains a substantiated, inclusive and comprehensive approach to the problem by integrating various fields of discipline?		
P#	**Comment**	**Solution**
1	The framework is structured well, forgets the whole topic of cultural change for BMI. Its practicality is irrelevant if the company isn't able to adjust internally in order to develop new business models	Covered in Change Management.
8	It does within the Business Models, but I'm not sure that it contains the problems of market and industry dynamics, which sometimes are dictated by trends / unknown changes, which need to include variables in the cycles.	External influences, Industry Dynamics and trends are accounted for in Steps 1, 3, 7 and 10.
	The uncertainty in the BMI should maybe be included much more and should be considered in the testing/validation process.	It was described in Chapter 6 in Step 11 that the initial design must be kept at a basic level through which assumptions are generated and then later verified through iteration processes as suggested by Osterwalder and Pigneur (2010) and Johnson (2010b).
9	The practical application is dependent on the guidance given on each component. Conceptual progress is important but it must be complimented with practical guidance on how to apply the process phases.	Supports inclusion of tool descriptions, which explicitly describe how each tool must be used.
		Step content and tool verification are for future research purposes.
10	In order to call it fully comprehensive, it is missing at least the elements I mentioned a few times. But the approach itself is rather linear (though you try to avoid it). If you would really like to make it more inclusive, I guess you will have to make it less structured and less rational	Addressed with more explicit illustration of iterative loops in the High-Level Phase Model and additional feedback loops from Phase 2 & 3 back to Step 10.

Table AA21: Feedback obtained in question 51 for question 50.

Question 50: Do you agree or disagree that the framework is flexible and adjustable enough to be used within specific situations?		
P#	**Comment**	**Solution**
7	It is generic enough to identify specific needed activities and testing for different innovations and sectors	Supports generic nature of the framework.
9	See flexibility comments. I see this framework as being for settled businesses and less for start-ups.	Supports statement at the end of Section 6.2.4 that the framework is more for settled businesses.

Table AA22: Feedback obtained in question 53 for question 52.

Question 52: Do you agree or disagree that the white space business model innovation framework is capable of supporting companies to assist them in making better-informed decisions on how to systematically identify a white space opportunity and develop an innovative business model?		
P#	**Comment**	**Solution**
5	Emphasize change management as well here.	Change Management was addressed in the High-Level Phase Model.
6	I think it will be of great assistance in planning and having a structured approach to making decisions relating to new business models in order to capture white space opportunities (assuming that it is the strategy of the organisation to pursue those opportunities, which to me is an important precondition).	This precondition was mentioned in Section 6.2.5.
7	As mentioned before, it is still a quite 'waterfall' planned approach to innovation, whilst in my experience a more 'validated learning' approach that starts asap is a better way to make better-informed decisions	Addressed in Table AA11.
8	I would need to see how the operational framework would look like, the idea is good, but execution and alignment in companies is the main problem, when it comes to BMI, innovation and change generally speaking.	Change Management was addressed in the High-Level Phase Model. See solution for Participant 15 in Table AA18.
14	Not sure if its complexity will limit applicability	See solution for Participant 15 in Table AA18.
15	It will more likely provide a guideline and synopsis of reference material to read to develop their own framework. The likelihood of a company adopting this seems remote, only because someone would have to agree with it and also be responsible for the driving it's usage within a company and with participation from many stakeholders.	See solution for Participant 15 in Table AA18.

Table AA23: Feedback obtained in question 55 for question 54.

Question 54: Do you agree or disagree that the developed framework makes a contribution to current literature?		
P#	**Comment**	**Solution**
1	It is a very good effort but personally, I do not see relevant additions to the St.Gallen Business Model Navigator methodology.	Disregard. Step 12 was validated through the design guidelines in Chapter as well as in several other comments in this Appendix AA.
6	This is a valuable contribution and I can see this being developed much further in a very useful framework and method for organisations.	Supports contribution to literature and potential for further research.
7	Love the way you combined the 3 business model approached	Supports contribution to literature through the design table.
9	As a Masters this has contributed to literature by putting together and re-configuring literature domains, but no novel information was added as is needed for a Phd.	Supports contribution to literature at a Masters Level.
13	I don't know all the current literature to be able to answer this question properly	No solution.
15	The comparison of existing frameworks and putting them into similar activity groupings was probably the most useful.	Supports contribution to literature through the design table.
18	Great job!!!	No solution.